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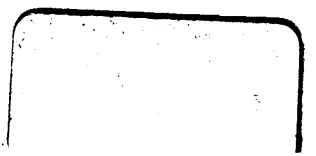

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STATISTICAL REPORT

OF THE

California

State Board of Agriculture

For the Year 1913

CALIFORNIA
STATE PRINTING OFFICE
1914

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STATE BOARD OF AGRICULTURE, 1913.

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B. F. RUSH	Vice-President
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1913

REPORT

OF THE

STATE BOARD OF AGRICULTURE.

LETTER OF TRANSMITTAL.

July 1, 1914.

To His Excellency, HIRAM WARREN JOHNSON,
Governor of the State of California.

SIR: We have the honor to submit herewith the Sixtieth Annual Report of the State Board of Agriculture, containing the financial statement for the fiscal year ending June 30, 1914, with a statistical report of the production of California for the calendar year 1913.

The financial statement shows an increase over previous years that is gratifying, notwithstanding the fact that the year could not be viewed as a prosperous one for the State, owing to the decreased production of the soil, due to unfavorable weather conditions for 1913, as well as the previous year.

The State Fair is steadily gaining in prestige and usefulness, as well as in aggregate receipts. The comparative statement for the past three years, giving in round numbers the gains for each year, is as follows:

1911	$7,500 00
1912	9,000 00
1913	12,000 00

This increase is largely due to the policy of making the fair fully representative of the agricultural, manufacturing and live stock industries, while other interests of the State are recognized and given full opportunity for proper exploitation and advancement. The State Fair is one of our most potential agencies in the line of practical education, not alone in displaying our products, but in the more valuable field of comparing methods and experiences of those in whose hands lies the development of our resources.

It is opportune at this time to call attention to the necessity for better facilities for the State Fair. The buildings and grounds are inadequate to meet the demands of the producers of the State for the proper display of their products. Exhibits in all departments rival in volume and quality the best fairs of older and more thickly settled states, while our facilities are much inferior. This condition should not exist if the fair is to keep pace with the increasing production of the State. If this condition were fully understood by the people there would be no doubt of their favorable action on the pending bond issue for the improvement of the fair grounds. With $750,000.00 from this source California's

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State Fair could be made a most useful instrument for this great state, and would rival any in the union.

The statistical figures submitted with this report are not a complete statement of the resources of California, but give data on some lines that can not be obtained elsewhere. The report also shows valuable figures and comparisons compiled from United States reports and from other official and quasi-official sources, representing, as a whole, a very useful compendium of California's wealth and diversified interests. It is to be regretted that the funds at the disposal of the board are not sufficient to justify the undertaking of this work on an original and independent basis; California, with its wonderful resources, could well afford to spend the money each year that is necessary, in order to place facts in regard to our vast production and resources before the world.

Excepting dairy cattle, the year 1913 shows a slight decrease in the live stock industry. The dairy class shows a substantial gain, both in numbers and value. Grain and fruits are below the average, the aggregate ranging from 60 to 80 per cent of the normal production. On the other hand, the development of cotton, rice, and tobacco is noteworthy. The cultivation of cotton on a commercial basis dates back but five years, yet the crop of 21,500 bales in 1913 is an important feature in the State's production for the year. Rice is a more recent product, its cultivation having commenced in 1911. The seeding of 6,250 acres in rice in 1913, with an estimated production of 20,000,000 pounds, and the establishing of two rice mills during the year are the best evidence of the growing importance of this staple product to California.

The cultivation of tobacco is gaining in importance. The growers have been somewhat disappointed in the prices received, but this is largely due to the method used in curing the leaf, a matter that will be overcome by experience. The yield for 1913 was estimated at 175,000 pounds.

Our own citizens, as well as those of other states and countries, will find it of interest to review this report, showing, as it does, the development of California and our relative position in the production of the world's resources.

Respectfully submitted.

A. L. SCOTT, President.

CHAS. W. PAINE, Secretary.

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FINANCIAL STATEMENT.

July 1, 1913, to June 30, 1914.

SUMMARY.

RECEIPTS.

Appropriations for statistics	$3,570 20
Appropriation for directors' traveling expenses	3,095 52
Appropriation for salaries	5,541 67
Appropriation for aid	30,000 00
Deficiency sixty-third and sixty-fourth fiscal years	15,337 26
Interest	261 05
Race card sales	352 99
Poultry entry fees	402 65
Live stock entry fees	1,226 50
Gate receipts, 1912	47,895 80
Concessions	8,205 11
Stall rent	743 90
Park and pavilion, 1913	1,239 20
Park and pavilion, 1914	10 00
Sale of junk	538 20
Total	$118,360 05

DISBURSEMENTS.

Electric light account	$3,054 66
Traveling expenses	364 85
Directors' traveling expenses	2,052 67
Bills payable	15,337 26
Groom prizes	195 00
Salaries	10,961 67
Payroll	10,638 18
Expenses	11,055 34
Advertising	8,776 42
Freight, drayage, express	412 77
Stable expense	1,019 27
Postage	582 58
Premiums paid	17,923 16
Night horse show	714 00
Races	8,141 76
Judges' fees	1,175 00
Attractions	16,478 28
Official program	256 65
Revolving fund	500 00
State treasurer, balance on hand	8,720 53
Total	$118,360 05

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STATISTICAL SUMMARY

OF THE

Production and Resources

OF

CALIFORNIA

BY

GEORGE ROBERTSON

State Statistician

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PREFACE.

In the year 1911 a statistical report for the whole State was first issued, the statistics being carried back to the year 1850, when the State was first organized. In the report for 1913 the statistics for the earlier years from 1850 to 1880 have as a rule been omitted, but they can be obtained on referring to the reports of the two previous years. The source of the figures contained in this report are the most trustworthy that can be obtained, and have been brought down to the latest possible date.

This report is compiled in compliance with the law which provides that the State Board of Agriculture shall "create and maintain a statistical department for the annual collection, compilation and distribution of statistics relating to the production and resources of the State," and another act, in 1911, which appropriated the sum of $5,000.00 per annum for this purpose.

The great importance and value of statistics is now universally recognized, but it is a science which has been much neglected in California. In the reports published in all civilized countries it is usual to give the figures for ten to twenty years, and even longer periods, in order to enable comparisons to be made, and this precedent has been followed, as being the only way in which reliable data can be secured.

It has been found necessary to reduce the size of this report by upwards of sixty pages in order to keep within the amount of the appropriation. Since the report for 1911 was issued there has been a constant and growing demand for statistics classified by counties, such as were given in the report of that year. It is therefore intended to give a descriptive account of each county next year, together with complete statistics.

The duties on imports are those imposed by the Tariff Act of 1913.

Much information has been obtained from federal publications, and acknowledgement and an expression of high appreciation are due to the United States Department of Agriculture, the Bureau of Statistics, Bureau of the Census, Department of Commerce, United States Geological Survey, Commissioner of Fisheries, Commissioner of Indian Affairs, General Land Office, National Conservation Commission, the Reclamation Service Department, the Commissioner of Internal Revenue, the Comptroller of the Currency, and the Bureau of Corporations.

The report of the Conservation Commission of California, recently issued, is the most valuable work relating to irrigation yet published, as it shows what land is capable of irrigation in every part of the State

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The writer desires to express his special obligations to Frank Adams, Irrigation Manager; George H. Willson, Local Forecaster of the Weather Bureau at San Francisco; David T. Day, of the United States Geological Survey; Henry S. Graves, U. S. Forester; and Frank J. Snow, Deputy Collector, Internal Revenue Department of San Francisco. For the description of varieties of wine grapes and wine-making, acknowledgments are due Professor F. T. Bioletti, the viticulturist of the University of California.

Among the state departments, valuable assistance has been received from the State Controller's Department, the State Water Commission, State Mining Bureau, State Dairy Bureau, and the splendid State Library at the Capitol.

G. R.

Sacramento, California, July 1, 1914.

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NOTE.—For the section containing a descriptive account of each county with summary of the number of domestic animals and farm crops, see Report for 1911. The duty on imports given is that imposed by the Tariff Act of 1913.

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NOTES REGARDING CHANGES IN BOUNDARIES OF COUNTIES AND INCORPORATED PLACES.

Colusa—Part taken to form Glenn in 1891.

Del Norte—Part annexed to Siskiyou between 1880 and 1890.

Fresno—Part taken to form Madera in 1893, and part annexed to Kings in 1909.

Glenn—Organized from part of Colusa in 1891.

Humboldt—Part of Klamath annexed in 1874.

Imperial—Organized from part of San Diego in 1907.

Kings—Organized from part of Tulare in 1893, and part of Fresno annexed in 1909.

Lake—Part annexed to Napa in 1872.

Los Angeles—Part taken to form Orange in 1889.

Madera—Organized from part of Fresno in 1893.

Modoc—Organized from part of Siskiyou in 1874.

Monterey—Part taken to form San Benito in 1874.

Napa—Part of Lake annexed in 1872.

Orange—Organized from part of Los Angeles in 1889.

Riverside—Organized from parts of San Bernardino and San Diego in 1893.

San Benito—Organized from part of Monterey in 1874.

San Bernardino—Part taken to form part of Riverside in 1893.

San Diego—Part taken to form part of Riverside in 1893, part taken to form Imperial in 1907.

Santa Barbara—Part taken to form Ventura in 1871.

Siskiyou—Part taken to form Modoc in 1874; part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890.

Tulare—Part taken to form Kings in 1893.

Ventura—Organized from part of Santa Barbara in 1871.

INCORPORATED PLACES.

Bakersfield—Part of township 3 (Kern City) annexed in 1909.

Berkeley—Part of Oakland township annexed in 1906 and 1908.

Fresno—Part of township 3 annexed in 1910.

Los Angeles—Parts of Ballona, Burbank, Cahuenga, and San Antonio townships annexed between 1890 and 1900; part of Ballona township annexed in 1906; part of Willington township (including San Pedro city) annexed in 1909, and parts of Burbank and Cahuenga townships annexed in 1910.

Oakland—Parts of Brooklyn and Oakland townships annexed in 1909.

Ontario—Part of Ontario township annexed in 1901.

Pasadena—Parts of Pasadena township annexed in 1904 and 1906.

San Leandro—Part of Brooklyn township annexed in 1909.

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TABLE I.

Counties and County Seats.

(Date of creation and land area.)

County	County seat	Date of creation	Land area, square miles	Approximate acreage
Alameda	Oakland	Mar. 25, 1853	732	468,480
Alpine	Markleeville	Mar. 16, 1864	776	496,640
Amador	Jackson	May 11, 1854	601	384,640
Butte	Oroville	Feb. 18, 1850	1,722	1,102,080
Calaveras	San Andreas	Feb. 18, 1850	1,027	657,280
Colusa	Colusa	Feb. 18, 1850	1,140	729,600
Contra Costa	Martinez	Feb. 18, 1850	714	456,960
Del Norte	Crescent City	Mar. 2, 1857	1,024	655,360
El Dorado	Placerville	Feb. 18, 1850	1,753	1,121,920
Fresno	Fresno	Apr. 19, 1856	5,950	3,808,000
Glenn	Willows	Mar. 11, 1891	1,259	805,760
Humboldt	Eureka	May 12, 1853	3,634	2,325,760
Imperial	El Centro	Aug. 15, 1907	4,089	2,616,960
Inyo	Independence	Mar. 22, 1866	10,019	6,412,160
Kern	Bakersfield	Apr. 2, 1866	8,003	5,121,920
Kings	Hanford	Mar. 22, 1893	1,159	741,760
Lake	Lakeport	May 20, 1861	1,278	817,920
Lassen	Susanville	Apr. 1, 1864	4,531	2,899,840
Los Angeles	Los Angeles	Feb. 18, 1850	4,067	2,602,880
Madera	Madera	Mar. 11, 1893	2,112	1,351,680
Marin	San Rafael	Feb. 18, 1850	529	338,560
Mariposa	Mariposa	Feb. 18, 1850	1,463	936,320
Mendocino	Ukiah	Feb. 18, 1850	3,453	2,209,920
Merced	Merced	Apr. 19, 1855	1,995	1,276,800
Modoc	Alturas	Feb. 17, 1874	3,823	2,446,720
Mono	Bridgeport	Apr. 24, 1861	3,030	1,939,200
Monterey	Salinas	Feb. 18, 1850	3,330	2,131,200
Napa	Napa	Feb. 18, 1850	783	501,120
Nevada	Nevada City	Apr. 25, 1851	974	623,360
Orange	Santa Ana	Mar. 11, 1889	795	508,800
Placer	Auburn	Apr. 25, 1851	1,395	892,800
Plumas	Quincy	Mar. 18, 1854	2,594	1,660,160
Riverside	Riverside	Mar. 11, 1893	7,240	4,633,600
Sacramento	Sacramento	Feb. 18, 1850	983	629,120
San Benito	Hollister	Feb. 12, 1874	1,392	890,880
San Bernardino	San Bernardino	Apr. 26, 1853	20,157	12,900,480
San Diego	San Diego	Feb. 18, 1850	4,221	2,701,440
San Francisco	San Francisco	Feb. 18, 1850	43	27,520
San Joaquin	Stockton	Feb. 18, 1850	1,448	926,720
San Luis Obispo	San Luis Obispo	Feb. 18, 1850	3,334	2,133,760
San Mateo	Redwood City	Apr. 19, 1856	447	286,080
Santa Barbara	Santa Barbara	Feb. 18, 1850	2,740	1,753,600
Santa Clara	San Jose	Feb. 18, 1850	1,328	849,920
Santa Cruz	Santa Cruz	Feb. 18, 1850	435	278,400
Shasta	Redding	Feb. 18, 1850	3,858	2,469,120
Sierra	Downieville	Apr. 16, 1852	923	590,720
Siskiyou	Yreka	Mar. 22, 1852	6,256	4,003,840
Solano	Fairfield	Feb. 18, 1850	822	526,080
Sonoma	Santa Rosa	Feb. 18, 1850	1,577	1,009,280
Stanislaus	Modesto	Apr. 1, 1854	1,450	928,000
Sutter	Yuba City	Feb. 18, 1850	608	389,120
Tehama	Red Bluff	Apr. 9, 1856	2,893	1,851,520
Trinity	Weaverville	Feb. 18, 1850	3,166	2,026,240
Tulare	Visalia	Apr. 20, 1852	4,856	3,107,840
Tuolumne	Sonora	Feb. 18. 1850	2,190	1,401,600
Ventura	Ventura	Mar. 22, 1872	1,878	1,201,920
Yolo	Woodland	Feb. 18, 1850	1,014	648,960
Yuba	Marysville	Feb. 18, 1850	639	408,960

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THE STATE OF CALIFORNIA.

(Date of organization as a State, September 9, 1850.)

PART I.

AREA AND POPULATION.

Vacant Public Lands; Indian Reservations; Population by Counties; White and Colored Population; Incorporated Cities and Towns; Japanese Statistics; Population by Counties, 1850-1910; Color and Nativity of Farmers; Counties, County Seats, and Land Areas.

The State of California is about 780 miles in length; its breadth varies from 150 to 350 miles and its total area is 158,297 square miles, of which 2,645 are water surface. In size it ranks second among the states of the Union, Texas being the only one to exceed it, and it is larger than the nine states of New York, New Jersey, Rhode Island, Massachusetts, Maine, Vermont, New Hampshire, Connecticut and Ohio, combined. The coast line is more than 1,000 miles long.

California has the highest and lowest land of the United States, the greatest variety of temperature and rainfall, and of products of the soil. The spread of irrigation and of intensive cultivation, and the increase of small farms during the last thirty years, have made California what it is to-day.

Agriculture had its beginning in wheat raising on great ranches, from fifty to several hundred thousand acres in extent; then deciduous orchard fruits and semi-tropical citrus fruits, successively.

Both the Spanish and Mexican governments made large grants of land to encourage settlement. These were used as cattle ranches exclusively, up to the time of the American occupation, and the exports consisted entirely of hides and tallow. These grants covered the valleys of the State to a large extent, and later were recognized and patented by the United States Government. About 500 of these claims, covering nearly nine million acres, were found to be valid.

Of the fifty-eight counties into which the State is now divided, the first twenty-seven were organized on the 18th of February, 1850; ten years later the number had increased to forty-two. In 1872, Ventura became the fiftieth county, and Imperial, the latest addition, was formed in 1907.

The land area of the State is about 99,617,280 acres, a great part of which is rough, mountainous country and desert, roughly classified as follows:

Land surface		Water surface		Total	
Square miles	Acres	Square miles	Acres	Square miles	Acres
155,652	99,617,280	2,645	1,692,800	158,297	101,310,080

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Approximately one half of the land surface of the State is under the control of the Federal Government, including 25,000,000 acres in forest reserves, and about an equal amount in public domain. In 1908 the amount of swamp and overflow land was 1,850,000 acres.

Indian Reservations—1880-1913.

Area—Unallotted.

1900		1912		1913		
Acres	Square miles	Acres	Square miles	Alloted, acres	Unalloted, acres	Total, acres
406,396	635	364,743	569	72,886	364,743	437,629

Indian Population—1880-1913.

1890	1900	1912	1913
12,108	11,431	17,517	16,513

Public and Indian Lands Entered for Cash—1902-1913.

(In acres.)

1902	655,966	1908	766,962
1903	957,507	1909	1,290,579
1904	986,253	1910	1,214,348
1905	1,032,758	1911	1,064,644
1906	809,811	1912	872,301
1907	579,294	1913	937,230

Original Homestead Entries—1900-1912.

(In acres.)

1902	315,784	1908	235,816
1903	300,968	1909	216,699
1904	266,317	1910	278,700
1905	262,973	1911	1,062,005
1906	211,567	1912	871,381
1907	173,438	1913	*

Railroad Selections—1902-1912.

(In acres.)

1902	9,587	1908	3,897
1903	76,089	1909	589,000
1904	347,258	1910	364,084
1905	426,951	1911	442,879
1906	318,986	1912	23,995
1907	100,971	1913	*

Vacant Public Lands—Areas Unappropriated and Unreserved—1890-1913.

(In acres.)

Year	Surveyed	Unsurveyed	Total
1890	38,750,564	15,172,154	53,922,718
1900	34,423,923	8,043,589	42,467,512
1912	17,671,839	5,343,499	23,015,338
1913	15,633,304	5,220,333	20,853,637

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Total Public Lands Surveyed and Unsurveyed—1913.

(In acres.)

Surveyed during year 1913	Total surveyed to June 30, 1913	Unsurveyed	Total land area
302,876	78,912,454	20,986,426	99,898,880

*Figures not yet issued.

Regulations for Obtaining Vacant Public Lands.

Practically all the vacant public land which is easily accessible has been already taken up, the areas now remaining being situated at a considerable distance from towns or villages, or in remote mountain valleys.

Before entry personal inspection of the lands should be made to ascertain if they are suitable, and when the applicant is satisfied on this point, entry can be made at the local land office. Information regarding vacant land in any district can be obtained on application to the register and receiver of the proper local land office, who will give full information regarding vacant land and the steps necessary to be taken in making entry. All vacant unappropriated public lands, non-mineral and non-saline in character, are subject to entry under the homestead laws. School lands have been withdrawn from sale until September 1, 1915.

Homesteads.

Any person who desires to obtain a homestead must be a citizen of the United States or have declared his intention to become such, over the age of twenty-one years, and not the proprietor of more than 160 acres of land in the United States; having selected his land, must file his application to enter in the United States land office for the district in which the land is situated. The application must be sworn to before the register or receiver of the land office, or before the county clerk of the county in which the land is situated, or before a United States commissioner for the district in which the land is situated.

Six months from the date of filing is allowed him to establish his bona fide residence on the homestead, which from that time to the date of his final proof must be his home to the exclusion of a home elsewhere.

The period of residence was reduced in June, 1912, from five to three years, from the time of establishing actual permanent residence upon the land.

He must show that he has cultivated one sixteenth of the area of the land, beginning with the second year from date of entry, and one eighth of the area the following year and until proof is submitted. A mere breaking of the soil will not meet the terms of the law, but such breaking and stirring of the soil must be accompanied by planting or the sowing of seed and tillage for crops other than native grasses. If his proof is satisfactory, and the Government, after investigation, finds that he has complied with the law in good faith, his entry will be clear-listed, and in due time he will receive a patent for the land.

He may, before three years, by paying the purchase price of the land, at the rate of $1.25 per acre if it is situate outside the limits of a railroad grant, and at the rate of $2.50 per acre if it is within the granted limits of a railroad, offer what is known as commutation proof, which must show at least fourteen months of actual and substantially con-

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tinuous residence, with bona fide cultivation and improvement of the land, immediately prior to his application to make such proof.

The United States Land Office fees and commissions for filing on 160 acres are $16.00 if the land is outside of the limits of a railroad grant; if inside the granted limits of a railroad they would amount to $22.00. The fees and commissions are computed upon the acreage of the tract entered.

The final proof commissions on 160 acres would be $6.00, if the land is outside a railroad grant, and $12.00 if inside the limits of a grant. Added to this are fees ranging from $2.00 to $4.00 based upon the number of words of testimony in the proof. There are no other fees or commissions required of a homesteader by the Government.

Those who commute their homesteads must pay the purchase price of the land in addition to the above fees, except the final proof commission, which are not required on commuted homesteads.

The following tables, based on reports furnished by the district land offices, show, by states, territories, land districts, and counties, the area of unappropriated and unreserved public lands, surveyed and unsurveyed, and a brief description of the character of the vacant lands. The General Land Office can furnish no more definite information as to the location and character of the vacant lands than is found in said tables. Inquiries regarding the climate and soil in any given vicinity may be addressed to the Department of Agriculture.

A township diagram, showing only entered lands in any township, can be procured by sending $1.00 to the register and receiver of the land office of that district. The diagram required should be specified by township and range number.

While the figures in the tables may not be absolutely correct, owing to liability to error in a work of such magnitude and to the necessity of making estimates of unsurveyed lands, it is believed that they afford a close approximation to the actual areas. The statement is intended to inform correspondents and the general public as to whether there is much or little public land in the several land states and territories and the land districts therein and in particular counties and localities.

In many counties only a few acres are reported as vacant. Neither the General Land Office nor the local land officers can furnish information as to the location of such tracts, but such information may be obtained from the records of the local land offices, which, when not in official use, are open to inspection by prospective home seekers or their agents.

Before entry personal inspection of the lands should be made to ascertain if they are suitable, and when the applicant is satisfied on this point entry can be made at the local land office in the manner prescribed by law, under the direction of the local land officers, who will give full information. Should any one desire information in regard to vacant lands in any district before going there for a personal inspection, he should address the register and receiver of the proper land office, who will give full information regarding vacant lands and the steps necessary to be taken in making entry.

Dry Farming.

A regulation has recently been issued increasing the area of a homestead from 160 to 320 acres on land having no water supply, in Los Angeles, Imperial, San Diego, and Riverside counties.

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Vacant Public Lands in California Unappropriated and Unreserved, July 1, 1913.

Counties	Land district	Surveyed	Unsurveyed	Total	Brief description of character of unappropriated and unreserved land
Alameda	San Francisco	2,265	1,519	3,784	Mountain land.
Alpine	Independence	10,581		10,581	Agricultural, mountainous.
Amador	Sacramento	13,972		13,972	Grazing, timber, mineral.
Butte	Sacramento	54,824		54,824	Mountainous land; timbered.
Calaveras	Sacramento	73,354		73,354	Grazing, timber, mineral.
Colusa	Sacramento	25,564	1,280	26,844	Agricultural and grazing.
Contra Costa	San Francisco	2,080	320	2,400	Mountainous.
Del Norte	Eureka	831		831	Very rough, broken, and mountainous; timber, grazing and mineral land.
El Dorado	Sacramento	43,022	1,540	44,562	Timber, grazing, mineral.
Fresno	Visalia	130,720	11,480	142,200	Mountainous, grazing, and timber.
Fresno	Sacramento	25,756	4,560	30,316	Mountain land.
Fresno	San Francisco	62,997	3,862	66,859	Mountain land.
Glenn	Sacramento	15,858		15,858	Agricultural and grazing.
Humboldt	Eureka	86,011	18,623	104,634	Mountainous; grazing and timber land; some mineral.
Imperial	Los Angeles	76,503	15,147	91,650	Arid, level desert, mountainous.
Inyo	Independence	2,591,967	1,205,823	3,797,790	Agricultural, mountainous.
Kern	Visalia	97,658	24,128	121,786	Arid plains, mountainous.
Kern	San Francisco	33,879		33,879	Mountain land.
Kern	Independence	384,834	98,041	482,875	Arid, mountainous, grazing.
Kern	Los Angeles	76,503	15,147	91,650	Arid, level desert, mountainous.
Kings	San Francisco	2,431		2,431	Mountain land.
Kings	Visalia	32,292		32,292	Arid plains; mountainous.
Lake	Sacramento	9,720		9,720	Hilly, agricultural, grazing.
Lake	San Francisco	153,433	12,185	165,618	Mountain land.
Lassen	Susanville	1,312,870	46,746	1,359,116	Timber, desert, grazing and mineral.
Los Angeles	Los Angeles	584,791	132,592	717,383	Arid, level desert, mountainous.
Madera	Sacramento	32,817		32,817	Hilly; farming, grazing and mineral.
Marin					None.
Mariposa	Sacramento	95,953		95,953	Mountainous; mineral, grazing, timber.
Mendocino	Eureka	19,118		19,118	Mountainous; timber and grazing land.
Mendocino	San Francisco	229,604	23,789	253,393	Mountain land.
Merced	Visalia	8,361		8,361	Mountainous, grazing.
Merced	Sacramento	14,932		14,932	Rolling foothills; farming and grazing.
Merced	San Francisco	26,115		26,115	Mountain land.
Modoc	Sacramento	9,069	21,205	30,274	Mountainous, grazing, timber.
Modoc	Susanville	287,032	16,840	303,872	Timber, desert, grazing and farming.
Mono	Independence	299,764	40,573	340,337	Grazing, agricultural, mineral.
Monterey	San Francisco	300,616	14,760	315,376	Mountain land.
Monterey	Visalia	2,240		2,240	Mountainous, grazing.
Napa	Sacramento	27,601		27,601	Hilly, mineral and grazing.
Napa	San Francisco	49,953		49,953	Mountain land.
Nevada	Sacramento	47,722		47,722	Mineral, timber.
Orange	Los Angeles	20,218	1,906	22,124	Mountainous and hilly.
Placer	Sacramento	26,100	1,540	27,640	Mineral, timber and grazing.
Plumas	Susanville	14,066	3,877	17,943	Mountainous, timber mineral.
Riverside	Los Angeles	1,192,408	575,241	1,767,649	Mountainous, rolling, and level desert.
Sacramento					None.
San Benito	San Francisco	195,275	4,035	199,310	Mountain land.
San Benito	Visalia	9,066		9,066	Mountainous, grazing.
San Bernardino	Independence	2,214,079	1,198,237	3,412,316	Arid, mineral, mountainous.
San Bernardino	Los Angeles	2,827,233	888,545	3,715,778	Mountainous, rolling, and level desert.
San Diego	Los Angeles	85,571	334,599	420,170	Mountainous, rolling, and level desert.
San Francisco					None.
San Joaquin	San Francisco	3,957		3,957	Mountain land.
San Luis Obispo	San Francisco	191,870	5,332	197,202	Mountain land.
San Luis Obispo	Visalia	29,955		29,995	Mountainous, grazing.
San Mateo					None.
Santa Barbara	Los Angeles	42,820	6,396	49,216	Mountainous and rolling.

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Vacant Public Lands—Continued.

Counties	Land district	Surveyed	Unsurveyed	Total	Brief description of character of unappropriated and unreserved land
Santa Barbara	San Francisco	11,538		11,538	Mountain land.
Santa Clara	San Francisco	66,666	4,924	71,590	Mountain land.
Santa Cruz					None.
Shasta	Sacramento	4,968	35,050	40,018	Farming, grazing, timber, and mineral.
Sierra	Susanville	40,420		40,420	Timber, mountainous and mineral.
Siskiyou	Eureka	302		302	Agricultural.
Siskiyou	Sacramento	155,701	116,213	271,914	Farming, grazing, timber, and mineral.
Solano	San Francisco	2,007		2,007	Mountain land.
Sonoma	San Francisco	42,726	4,361	57,087	Mountain land.
Stanislaus	Sacramento	20,991		20,991	Foothills; farming, grazing.
Stanislaus	San Francisco	26,639	2,926	29,565	Mountain land.
Sutter					None.
Tehama	Sacramento	54,831	10,751	65,582	Grazing and agricultural.
Trinity	Eureka	31,349	2,560	33,909	Mountainous; grazing, timber, and mineral land.
Trinity	Sacramento	48,947	9,361	58,308	Mountainous; grazing, timber, and mineral land.
Tulare	Visalia	9,996	50,868	60,864	Arid plains and mountainous; timber.
Tuolumne	Sacramento	66,978	1,600	68,578	Timber, grazing, mining.
Ventura	Los Angeles	54,610	54,438	109,048	Mountainous and rolling.
Yolo	Sacramento	40,753		40,753	Grazing and agricultural.
Yuba	Sacramento	26,442		26,442	Agricultural, timber, and mineral.
	Totals	15,633,304	5,220,333	20,853,637	

Total Vacant Public Lands in Counties Situated in More Than One Land District.

County	Surveyed	Unsurveyed	Total
Fresno	219,473	19,902	239,375
Kern	592,874	137,316	730,190
Kings	34,723		34,723
Lake	163,153	12,185	175,338
Merced	49,408		49,408
Mendocino	248,722	23,789	272,511
Modoc	296,101	38,045	334,146
Monterey	302,856	14,760	317,616
Napa	77,554		77,554
San Benito	204,341	4,035	208,376
San Bernardino	5,041,312	2,086,782	7,128,094
San Luis Obispo	221,825	5,332	227,157
Santa Barbara	54,358	6,396	60,754
Siskiyou	156,003	116,213	272,216
Stanislaus	47,630	2,926	50,556
Trinity	80,296	11,921	92,217

The following six counties have no unappropriated or unreserved land:

Marin.	San Francisco.	Santa Cruz.
Sacramento.	San Mateo.	Sutter.

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Summary by Land Districts, July 1, 1913.

District	Surveyed	Unsurveyed	Total
Eureka	137,611	21,183	158,794
Independence	5,501,225	2,542,674	8,043,899
Los Angeles	5,670,366	2,221,424	7,891,790
Sacramento	935,875	203,100	1,138,975
San Francisco	1,414,051	78,013	1,492,064
Susanville	1,653,888	67,463	1,721,351
Visalia	320,288	86,476	406,764
Totals	15,633,304	5,220,333	20,853,637

Vacant Public Lands in the United States.

State or territory	Area unappropriated and unreserved		
	Surveyed	Unsurveyed	Total
Alabama	77,600		77,600
Alaska		[1]367,963,823	367,963,823
Arizona	11,750,267	27,774,928	39,525,195
Arkansas	397,489	70,000	467,489
California	15,633,304	5,220,333	20,853,637
Colorado	17,787,548	1,565,683	19,353,231
Florida	202,886	155,531	358,417
Idaho	7,748,512	10,167,110	17,915,622
Kansas	92,568		92,568
Louisiana	78,014		78,014
Michigan	89,057		89,057
Minnesota	1,286,394		1,286,394
Mississippi	41,660		41,660
Missouri	713		713
Montana	10,977,501	10,565,352	21,542,853
Nebraska	405,469		405,469
Nevada	29,359,141	25,779,452	55,138,593
New Mexico	20,927,792	10,370,829	31,298,621
North Dakota	1,156,120		1,156,120
Oklahoma	41,636		41,636
Oregon	13,613,442	2,932,080	16,545,522
South Dakota	3,751,651	53,781	3,107,432
Utah	12,290,342	21,547,254	33,837,596
Washington	1,079,957	670,251	1,750,208
Wisconsin	9,880		9,880
Wyoming	30,405,454	1,850,225	32,255,679
Grand totals	179,204,397	486,686,632	665,891,029

[1] The unreserved lands in Alaska are mostly unsurveyed and unappropriated.

Indian Reservations.

The Indians were prominent in early California history, but their progress towards their present insignificance began far back in the Spanish period. It proceeded much more rapidly after the restraining influence of the Missions was removed, leaving them free to revert to savagery; and the downward progress of the race was fearfully accelerated during the mining period, when they were ambushed, depraved, and in large numbers killed. There have been no Indian wars in California's annals, but many butcheries.

The natives have declined exceedingly in number since 1834. They have always been mild-tempered, low, and unintelligent, and are to-day a poor and miserable race. They are called "Digger Indians," indiscriminately, although divided by a multiplicity of tongues.

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The Indians of California are of at least fourteen different linguistic stocks. The Government, in dealing with the California tribes, did not follow the policy pursued with the wild Indians of the plains, and no treaties were made with them and no remuneration paid for lands acquired by white settlers. None of the California tribes knew anything of agriculture until the advent of the Spaniard, and with the exception of Mission Indians, they received their first instructions after they were taken in charge by the United States Government. Those near the coast and rivers lived principally upon fish, while in the interior the acorn and other nuts, mesquite beans, roots, and game furnished the food supply. Large numbers are located on twenty-six reservations, namely: Hupa Valley, Round Valley, Tule River, Yuma, and twenty-two Mission reservations. They are in advance of the Indians of the plains in intelligence and civilization.

Hupa Valley reservation, consisting of the reservation proper and the Lower Klamath "connecting strip," is located in Humboldt County, and comprises an area of 155 square miles. The Lower Klamath on the "connecting strip" bears no resemblance in language to the Hupa or Klamath of Oregon.

Most of the Mission Indians are located on small reservations scattered over Riverside and San Diego counties. Among them are found representatives of a number of different tribes.

Round Valley reservation, embracing an area of 59 square miles, is situated in Mendocino County, and the remnants of nine small tribes are located here, who might well be classed as civilized. Tule River reservation in Tulare County contains 76 square miles, and contains the remainder of the once powerful Tule tribe. The Yuma reservation contains an area of 71¾ square miles, the Indians living on this section being the most primitive of the California tribes in manners and customs.

POPULATION OF CALIFORNIA.

The first settlement in California was made by the Spaniards in 1769, when the Franciscan Fathers founded a mission at San Diego. In 1776 the Mission Dolores was established where San Francisco now stands. California was under Spanish rule until 1822, when, at the termination of the Mexican revolution, it declared its allegiance to Mexico. For several years prior to 1846 large numbers of immigrants from the United States had been arriving in California, and in June of that year a revolt against Mexico was begun by the American settlers. In July and August the American flag was raised at Monterey, San Francisco, Sonoma, Sacramento, San Jose, San Diego, Santa Barbara, and Los Angeles, and other places.

The end of the war in Mexico took place January, 1847, and in February, 1848, California was ceded to the United States. From 1846 to 1849 California was under military and provisional rule by the United States. In October, 1849, a state constitution was adopted at Monterey, and on September 9, 1850, California became a state of the Union.

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Population of California, 1850-1910.

Year	Population	Increase over preceding census	
		Number	Per cent
1850	92,597		
1860	379,994	287,397	310.4
1870	560,247	180,253	47.4
1880	864,694	304,447	54.3
1890	*1,213,398	348,704	40.3
1900	1,485,053	271,655	22.4
1910	2,377,549	892,496	60.1

*Includes population of Indian reservations (5,268).

During each decade since 1850, the population of California has increased more rapidly than that of continental United States. The population of the State in 1910 was more than twenty-five times as large as in 1850, while the population of the continental United States was a little less than four times that in 1850.

Rank in Population of the Fifty States and Territories.

California ranked twenty-ninth in 1850, twenty-sixth in 1860, twenty-fourth in 1870 and 1880, twenty-second in 1890, twenty-first in 1900, and twelfth in 1910.

The Density of Population per Square Mile.

1850	1860	1870	1880	1890	1900	1910
.6	2.4	3.6	5.5	7.8	9.5	15.3

The density of population in California is low, the average number of persons to the square mile in 1910 being 15.3; in 1900, 9.5, and in 1890, 7.8. The average number per square mile for continental United States in 1910 was 30.9. This compares with 508.8 in Rhode Island, 418.8 in Massachusetts, 337.7 in New Jersey, 191.2 in New York, 342.4 in the United Kingdom, and 213.3 in India. The Australian Commonwealth has only 1.39 to the square mile, New Zealand 7.8, and Canada 1.4; 589 in Belgium, 436 in Holland, 188 in France, and 270 in Germany.

Population of Cities and Places of 2,500 to 25,000.

Population of cities of 25,000 and upward (8)	
San Francisco	416,912
Los Angeles	319,198
Oakland	150,174
Sacramento	44,696
Berkeley	40,434
San Diego	39,578
Pasadena	30,291
San Jose	28,946
Cities of 10,000 to 25,000 (13).	
Fresno	24,892
Alameda	23,383
Stockton	23,253
Long Beach	17,809
Riverside	15,212
San Bernardino	12,779
Bakersfield	12,727
Eureka	11,845
Santa Barbara	11,659
Vallejo	11,340
Santa Cruz	11,146
Redlands	10,449
Pomona	10,207

Cities of 2,500 to 6,000 (24)	
Richmond	6,802
Petaluma	5,880
San Luis Obispo	5,157
Alhambra	5,021
Hanford	4,829
Grass Valley	4,520
Palo Alto	4,486
Coalinga	4,199
Colton	3,980
Oroville	3,859
Chico	3,750
Salinas	3,736
Redding	3,572
Corona	3,540
Red Bluff	3,530
San Leandro	3,471
Redondo Beach	2,935
Glendale	2,746
Hayward	2,746
Porterville	2,696
Anaheim	2,628
Emeryville	2,613
Roseville	2,608
Oxnard	2,555

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San Francisco, the largest city, has a population of 416,912, and Los Angeles, the second city, a population of 319,198. Oakland, with 150,174 inhabitants, is the only other city in the State having over 100,000 inhabitants. The following eight cities had over 25,000 inhabitants in 1910:

City	Population	Increase over preceding census	Per cent
Berkeley	40,434	27,220	206.0
Los Angeles	319,198	216,719	211.5
Oakland	150,174	83,214	124.3
Pasadena	30,291	21,174	232.2
Sacramento	44,696	15,414	52.6
San Diego	39,578	21,878	123.6
San Francisco	416,912	74,130	21.6
San Jose	28,946	7,446	34.6

California has 58 counties, the population ranging from 309 in Alpine to 504,131 in Los Angeles County.

Two territorial changes have taken place since 1900: The eastern portion of San Diego County was taken into Imperial County in 1907, and part of Fresno County was annexed to Kings County in 1909.

Ten counties have decreased in population during the last decade, the rates of decrease ranging from 5.8 per cent in Mono County, to 39.3 in Alpine County, and a decrease from 125 in Mono County to 2,834 in Nevada County.

San Bernardino County, with 20,157 square miles, has the largest area; San Francisco County, co-extensive with San Francisco city, with 43 square miles and 9,695.6 persons per square mile, has the smallest area and the highest density. Alpine, Inyo, and Mono counties each average less than 1 person per square mile. In 1910 the urban territory of the State, or the cities and incorporated towns of 2,500 or more, contained 61.8 per cent of the total population, while 38.2 per cent lived in rural territory.

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TABLE II.

Population in California by Counties, 1850-1910.

Counties	1850	1860	1870	1880	1890	1900	1910
Alameda		8,927	24,237	62,976	93,864	130,197	246,131
Alpine			685	539	667	509	309
Amador		10,930	9,582	11,384	10,320	11,116	9,086
Butte	3,574	12,106	11,403	18,721	17,939	17,117	27,301
Calaveras	16,884	16,299	8,895	9,094	8,882	11,200	9,171
Colusa[1]	115	2,274	6,165	13,118	14,640	7,364	7,732
Contra Costa[2]		5,328	8,461	12,525	13,515	18,046	31,674
Del Norte[3]		1,993	2,022	2,584	2,592	2,408	2,417
El Dorado	20,057	20,562	16,509	10,683	9,232	8,986	7,492
Fresno[4]		4,605	6,336	9,478	32,026	37,862	75,657
Glenn[1]						5,150	7,172
Humboldt[5]		2,694	6,140	15,512	23,469	27,104	33,857
Imperial[11]							13,591
Inyo			1,956	2,928	3,544	4,377	6,974
Kern			2,925	5,601	9,808	16,480	37,715
Kings[6]						9,871	16,230
Klamath[7]		1,803	1,686				
Lake			2,969	6,596	7,101	6,017	5,526
Lassen			1,327	3,340	4,239	4,511	4,802
Los Angeles[8]	3,530	11,333	15,309	33,381	101,454	170,298	504,131
Madera[4]						6,364	8,368
Marin	323	3,334	6,908	11,324	13,072	15,702	25,114
Mariposa	4,379	6,243	4,572	4,339	3,787	4,720	3,956
Mendocino	55	3,967	7,545	12,800	17,612	20,465	23,929
Merced		1,141	2,807	5,656	8,085	9,215	15,148
Modoc				4,399	4,986	5,076	6,191
Mono			430	7,499	2,002	2,167	2,042
Monterey	1,872	4,739	9,876	11,302	18,637	19,380	24,146
Napa	405	5,521	7,163	13,235	16,411	16,451	19,800
Nevada		16,446	19,134	20,823	17,369	17,789	14,955
Orange[8]					13,589	19,696	34,436
Placer		13,270	11,357	14,232	15,101	15,786	18,237
Plumas		4,363	4,489	6,180	4,933	4,657	5,259
Riverside[9]						17,897	34,696
Sacramento	9,087	24,142	26,830	34,390	40,339	45,915	67,806
San Benito				5,584	6,412	6,633	8,041
San Bernardino[9]		5,551	3,988	7,786	25,497	27,929	56,706
San Diego[9]	798	4,324	4,951	8,618	34,987	35,090	61,665
San Francisco[2]		56,802	149,473	233,959	298,997	342,782	416,912
San Joaquin	3,647	9,435	21,050	24,349	28,629	35,452	50,731
San Luis Obispo	336	1,782	4,772	9,142	16,072	16,637	19,383
San Mateo		3,214	6,635	8,669	10,087	12,094	26,585
Santa Barbara	1,185	3,543	7,784	9,513	15,754	18,934	27,738
Santa Clara[2]		11,912	26,246	35,039	48,005	60,216	83,539
Santa Cruz	643	4,944	8,743	12,802	19,270	21,512	26,140
Shasta	378	4,360	4,173	9,492	12,133	17,318	18,920
Sierra		11,387	5,619	6,623	5,051	4,017	4,098
Siskiyou[10]		7,629	6,848	8,610	12,163	16,962	18,801
Solano	580	7,169	16,871	18,475	20,946	24,143	27,599
Sonoma	560	11,867	19,819	25,926	32,721	38,480	48,394
Stanislaus		2,245	6,499	8,751	10,040	9,550	22,522
Sutter	3,444	3,390	5,060	5,159	5,469	5,886	6,328
Tehama		4,044	3,587	9,301	9,916	10,996	11,401
Trinity	1,635	5,125	3,213	4,999	3,719	4,383	3,301
Tulare[6]		4,638	4,533	11,281	24,574	18,375	35,440
Tuolumne	8,351	16,229	8,150	7,848	6,082	11,166	9,979
Ventura				5,073	10,071	14,367	18,347
Yolo	1,086	4,716	9,899	11,772	12,684	13,618	13,926
Yuba	9,673	13,668	10,851	11,284	9,636	8,620	10,042
Totals	92,597	379,994	560,247	864,694	1,208,130	1,485,053	2,377,549

[1]Glenn organized from part of Colusa in 1892. [2]The returns for 1850 for Contra Costa and Santa Clara were lost, and those for San Francisco were destroyed by fire. [3]Part annexed to Siskiyou between 1880 and 1890. [4]Madera organized from part of Fresno in 1893, and another part of Fresno County annexed to Kings in 1909. [5]Part of Klamath annexed in 1874. [6]Kings organized from part of Tulare in 1893, enlarged by annexation of part of Fresno County in 1909. [7]Annexed to Humboldt and Siskiyou in 1874. [8]Orange organized from part of Los Angeles in 1889. [9]Riverside organized from part of San Bernardino and San Diego in 1893. [10]Part of Klamath annexed in 1874, and part of Del Norte annexed between 1880 and 1890. [11]Organized from part of San Diego County in 1907.

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TABLE III.

White and Colored Population by Counties, 1900.

Counties	Population, 1900				
	White	Negro	Indian	Chinese	Japanese
Alameda	125,432	1,334	71	2,211	1,149
Alpine	359	3	142	5	----
Amador	10,805	28	130	153	----
Butte	15,733	106	201	712	365
Calaveras	10,879	69	100	148	4
Colusa	6,840	76	121	274	53
Contra Costa	17,088	47	8	627	276
Del Norte	2,138	1	269	----	----
El Dorado	8,513	99	138	206	30
Fresno	34,570	399	520	1,775	598
Glenn	4,867	18	24	227	14
Humboldt	25,359	12	1,728	5	----
Imperial	----	----	----	----	----
Inyo	3,355	15	940	67	----
Kern	14,974	208	344	906	48
Kings	9,171	76	51	417	156
Lake	5,492	12	428	82	3
Lassen	4,099	1	381	28	2
Los Angeles	163,975	2,841	69	3,209	204
Madera	5,664	51	401	229	19
Marin	14,999	137	25	489	52
Mariposa	4,410	35	173	102	----
Mendocino	18,833	38	1,353	218	23
Merced	8,780	31	4	357	43
Modoc	4,560	7	503	6	----
Mono	1,656	1	389	120	1
Monterey	17,707	80	26	857	710
Napa	15,857	29	18	541	6
Nevada	17,024	70	48	632	15
Orange	19,459	98	----	136	3
Placer	14,494	35	74	1,050	133
Plumas	4,018	3	444	192	----
Riverside	16,421	254	809	316	97
Sacramento	40,917	511	24	3,254	1,209
San Benito	6,456	57	36	69	15
San Bernardino	26,605	216	572	388	148
San Diego	32,048	406	2,197	414	25
San Francisco	325,378	1,654	15	13,954	1,781
San Joaquin	32,941	322	1	1,875	313
San Luis Obispo	16,389	77	1	154	16
San Mateo	11,652	89	1	306	46
Santa Barbara	18,256	33	72	459	114
Santa Clara	57,934	251	9	1,738	284
Santa Cruz	20,515	81	67	614	235
Shasta	16,131	203	862	102	20
Sierra	3,669	7	31	309	1
Siskiyou	15,646	38	480	790	8
Solano	22,267	101	2	903	870
Sonoma	37,385	32	316	599	148
Stanislaus	9,223	61	25	236	5
Sutter	5,451	34	20	226	155
Tehama	9,878	147	99	729	143
Trinity	3,803	9	234	336	1
Tulare	17,709	73	175	370	48
Tuolumne	10,804	53	149	158	2
Ventura	13,826	34	5	408	94
Yolo	12,662	172	28	346	410
Yuba	7,651	170	24	719	56
Totals	1,402,727	11,045	15,377	45,753	10,151

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TABLE IV.

White and Colored Population by Counties, 1910.

Counties	White	Negro	Indian	Chinese	Japanese	Total*
Alameda	234,520	3,634	41	4,588	3,266	246,131
Alpine	213	----------	94	1	1	309
Amador	8,838	2	143	101	2	9,086
Butte	25,684	122	298	572	295	27,301
Calaveras	8,941	17	161	49	3	9,171
Colusa	7,155	50	169	218	140	7,732
Contra Costa	29,911	67	3	550	1,009	31,674
Del Norte	2,078	1	337	1	----------	2,417
El Dorado	7,198	28	177	58	31	7,492
Fresno	71,215	474	313	1,377	2,233	75,657
Glenn	6,915	15	32	129	33	7,172
Humboldt	32,153	40	1,652	6	6	33,857
Imperial	12,582	65	682	32	217	13,591
Inyo	6,020	21	792	100	41	6,974
Kern	36,007	369	220	841	273	37,715
Kings	15,366	172	32	358	293	16,230
Lake	5,055	11	433	24	3	5,526
Lassen	4,372	1	410	13	6	4,802
Los Angeles	483,478	9,424	97	2,602	8,461	504,131
Madera	7,650	56	419	211	32	8,368
Marin	24,186	145	26	555	199	25,114
Mariposa	3,674	18	192	69	3	3,956
Mendocino	22,310	31	1,170	263	77	23,929
Merced	14,697	75	----------	278	98	15,148
Modoc	5,629	4	546	11	1	6,191
Mono	1,621	----------	386	21	14	2,042
Monterey	22,135	107	29	575	1,121	24,146
Napa	19,437	48	6	205	103	19,800
Nevada	14,558	14	52	309	22	14,955
Orange	33,589	97	21	83	641	34,436
Placer	16,572	55	102	612	862	18,237
Plumas	4,629	5	380	105	20	5,259
Riverside	31,613	518	1,590	187	765	34,696
Sacramento	61,040	631	62	2,143	3,874	67,806
San Benito	7,643	26	----------	66	286	8,041
San Bernardino	54,153	642	573	284	946	56,706
San Diego	58,514	684	1,516	430	520	61,665
San Francisco	400,014	1,642	46	10,582	4,518	416,912
San Joaquin	46,339	307	8	1,968	1,804	50,731
San Luis Obispo	18,693	77	14	165	434	19,383
San Mateo	25,821	67	1	309	358	26,585
Santa Barbara	26,282	108	45	440	863	27,738
Santa Clara	79,849	262	16	1,064	2,299	83,539
Santa Cruz	25,159	83	15	194	689	26,140
Shasta	17,873	159	756	88	42	18,920
Sierra	3,910	----------	54	117	17	4,098
Siskiyou	17,413	29	1,109	226	24	18,801
Solano	25,432	250	1	811	894	27,559
Sonoma	47,167	43	340	287	554	48,394
Stanilaus	22,129	89	30	161	113	22,522
Sutter	6,012	10	18	79	134	6,328
Tehama	10,809	91	94	309	98	11,401
Trinity	2,903	8	227	163	----------	3,301
Tulare	34,159	190	204	257	615	35,440
Tuolumne	9,698	14	186	75	6	9,979
Ventura	17,132	64	3	235	872	18,347
Yolo	12,618	280	32	198	789	13,926
Yuba	8,909	203	16	493	336	10,042
Totals	2,259,672	21,645	16,371	36,248	41,356	2,377,549

*Not including 1,948 Hindus, 304 Koreans, and 5 Filipinos.

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TABLE V.

Foreign-born Population in California, 1860-1900.

Country of birth	1860	1870	1880	1890	1900
Africa	12	48	86	139	168
Asia[1]	346	56	16	164	235
Atlantic islands	121	943	3,356	2,587	3,515
Australia	896	1,593	2,350	1,905	2,269
Austria	727	1,078	1,948	3,687	5,356
Belgium	299	291	1,092	663	785
Bohemia		90	239	243	504
Canada	5,437	10,660	18,889	26,028	29,818
Central America	100	124	188	309	481
China	34,935	48,790	73,548	71,066	40,262
Cuba		45	182		93
Denmark	1,328	1,837	3,748	7,764	9,040
England	12,227	17,774	24,722	35,503	35,746
Europe[2]	33	56	109	194	59
Finland					2,763
France	8,462	8,068	9,550	11,855	12,256
Germany	20,919	29,701	42,532	61,472	72,449
Greece	93	97	170	259	372
Holland	439	452	694	760	1,015
Hungary		102	216	369	799
India		63	155	202	263
Ireland	33,147	54,421	62,962	63,138	44,476
Italy	2,987	4,660	7,537	15,495	22,777
Japan		32	133	1,224	10,264
Luxemburg		11	97	24	42
Mexico	9,150	9,339	8,648	7,164	8,086
Norway	715	1,000	1,765	3,702	5,060
Pacific islands[3]	334	93	173	1,296	1,089
Poland	730	804	1,026	914	1,320
Portugal	1,459	2,508	4,705	9,859	12,068
Roumania					73
Russia	260	540	1,013	3,140	3,421
Scotland	3,670	4,949	6,465	9,299	9,467
South America	2,250	1,940	1,797	1,366	1,137
Spain	470	405	572	836	896
Sweden	1,405	1,944	4,209	10,923	14,549
Switzerland	1,714	2,927	5,308	9,743	10,974
Turkey	13	17	36	202	649
Wales	1,262	1,517	1,920	1,860	1,949
West Indies[4]	304	349	528	670	372
Other countries	181	289	20	8	260
Born at sea		142	170	277	358
Totals	146,528	209,831	292,874	366,309	[5]367,240

[1]Except China, Japan, and India. [2]Not otherwise specified. [3]Except Philippine Islands. [4]Except Cuba and Porto Rico. [5]Of this number (367,240) 123,725 were English speaking from United Kingdom, Australia, and Canada.

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TABLE VI.

Foreign-born White Population in California in 1910.

Country*	White population of foreign birth or foreign parentage			
	Foreign born	Native, both parents foreign born	Native, one parent foreign born	Total
Atlantic islands	2,860	2,830	973	6,663
Austria	17,163	5,576	2,839	25,578
British:				
England	48,667	26,096	40,725	115,488
Ireland	52,475	69,988	37,216	159,679
Scotland	13,694	7,443	11,021	32,158
Wales	2,415	1,961	2,559	6,935
Australia	3,296	207	2,064	5,567
Canada—French	3,109	1,755	3,202	8,066
Canada—other	41,445	11,921	35,553	88,919
Total British	165,101	119,371	132,340	416,812
Denmark	14,208	8,244	4,043	26,495
Finland	6,156	2,535	301	8,992
France	17,390	8,836	6,387	32,613
Germany	76,305	85,362	44,715	206,382
Greece	7,918	269	211	8,398
Holland	2,304	1,078	1,035	4,417
Hungary	3,301	985	366	4,652
Italy	63,601	32,651	6,366	102,618
Mexico	33,444	10,787	6,806	51,037
Norway	9,952	4,666	2,528	17,146
Portugal	22,427	21,794	7,398	51,619
Russia	16,607	8,946	1,633	27,186
Spain	4,218	1,180	1,045	6,443
Sweden	26,210	14,797	5,464	46,471
Switzerland	14,520	8,861	4,632	28,018
Turkey	4,521	1,679	132	6,332
All other	9,044	†62,917	3,306	†75,267
Totals	517,250	403,364	232,525	1,153,139

*Foreign country in which born; or if native, in which parents were born.
†Exclusive of 161 whites and 5,107 Indians not distributed by state of birth.

NOTE.—The number of British born have increased in ten years from 123,725 to 416,812, an increase of 293,087.

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COMPARATIVE SUMMARY.

Color, Nativity, and Parentage, 1890-1910.

The State	1890	1900	1910
White	1,111,833	1,402,727	2,259,672
Negro	11,322	11,045	21,645
Indian	16,624	15,377	16,371
Chinese	72,472	45,753	36,248
Japanese	1,147	10,151	41,356
All other*			2,257
Total	1,213,398	1,485,053	2,377,549
Total native	847,089	1,117,813	1,791,117
Total foreign born	366,309	367,240	586,432
Total native white	818,280	1,086,222	1,742,422
Native parentage	497,890	644,428	1,106,533
Foreign parentage	217,979	282,830	403,364
Mixed parentage	102,411	158,964	232,525
Foreign-born white	293,553	316,505	517,250

*Includes 1,948 Hindus, 304 Koreans, and 5 Filipinos.

JAPANESE STATISTICS.

In March, 1912, the Japanese owned 331 farms, containing 12,726 acres, the assessed value of the land being $478,990, the improvements $130,615, or a total of $609,605.

The number of town lots held by Japanese was 218, the assessed value, $136,955, and the improvements $98,720, or a total of $235,675.

The information gathered in accordance with an act of the legislature (Chapter 134, of 1909) shows that there were 2,548 business establishments, the capital invested in most cases being very small, 68.7 per cent of the total having a capital of less than $1,000. The total aggregate capital invested, exclusive of that represented by banks, was $4,075,226. The total annual business transacted by these establishments amounted to $16,114,407, of which about 37 per cent was carried on with white persons. The total annual rent paid by these Japanese business houses was over $900,000.

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TABLE VII.

Japanese Farmers.

(Compiled from the Report of the Bureau of Labor Statistics.)

Counties	Owners		Total assessed value	Number of town lots	Total assessed value	Farm land leases	
	Number of farms	Acres				Number	Acreage*
Alameda	6	47	$63,200	36	$49,300	4	96
Alpine							
Amador							
Butte							
Calaveras							
Colusa							
Contra Costa	2	31	12,380	3	21,050	1	284
Del Norte							
El Dorado							
Fresno	31	4,776	229,020	61	75,695	11	45
Glenn				3	1,750		
Humboldt							
Imperial						7	848
Inyo							
Kern	5	100	1,170	4	2,565		
Kings	13	577	16,320	4	2,175		
Lake							
Lassen							
Los Angeles	27	459	33,800	23	3,560	60	2,418
Madera	4	100	3,600				
Marin							
Mariposa							
Mendocino							
Merced	14	1,049	42,095	2	1,785		
Modoc							
Mono				1	150		
Monterey	2	8	1,280	18	1,050	15	1,741
Napa	1	160	2,300			1	
Nevada	1	320	820	1	1,200		
Orange	5	41	4,190			7	292
Placer	26	732	20,335	4	1,825	23	1,007
Plumas							
Riverside	2	18	1,375	2	600	1	40
Sacramento	17	444	23,290	19	44,200	87	4,682
San Benito	3	60	2,050			5	280
San Bernardino	12	150	11,810	2	285		
San Diego						1	10
San Francisco				5	5,470		
San Joaquin	12	652	24,845	3	1,000	18	1,787
San Luis Obispo							
San Mateo	1	5	1,000	7	3,500	1	3
Santa Barbara						7	327
Santa Clara	4	90	15,365	1	4,750	35	904
Santa Cruz	3	330	9,065	4	3,635	6	220
Shasta	1	82	555				
Sierra				1	300		
Siskiyou							
Solano	11	814	23,230	2	550	5	565
Sonoma	2	66	5,900	3	3,600	1	
Stanislaus	2	40	1,625			1	180
Sutter	1	16	680			2	452
Tehama							
Trinity							
Tulare	15	1,053	47,525	2	2,150	2	60
Tuolumne							
Ventura	2	24	670	6	2,830	2	77
Yolo	5	320	8,830			11	1,278
Yuba	1	162	1,280	1	700		
Totals	331	12,726	$609,605	218	$235,675	282	17,596

*In 32 instances the acreage was not reported. Leases recorded from November 1, 1909, to December 1, 1912.

NOTE.—These figures show only the leases recorded in the offices of the various recorders, and do not represent all the land leased to Japanese, as most of the share leases are not recorded.

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Comparative Summary.

	1909	1912
Owners:		
Acreage	10,791	12,726 + 1,935
Total assessed value	$397,298	$609,605 + $212,307
Number of town lots	----------	218
Total assessed value	$174,694	$235,675 + $60,981
Leases:		
Number	319	282
Acreage	20,294	17,596

Population of the United States in 1910.

State	Total population	Indians not taxed	State	Total population	Indians not taxed
Alabama	2,138,093	-------	North Dakota	577,056	2,653
Arkansas	1,574,449	-------	Ohio	4,767,121	--------
California	2,377,549	988	Oklahoma	1,657,155	--------
Colorado	799,024	452	Oregon	672,765	--------
Connecticut	1,114,756	-------	Pennsylvania	7,665,111	--------
Delaware	202,322	-------	Rhode Island	542,610	--------
Florida	752,619	-------	South Carolina	1,515,400	--------
Georgia	2,609,121	-------	South Dakota	583,888	8,212
Idaho	325,594	2,154	Tennessee	2,184,789	--------
Illinois	5,638,591	-------	Texas	3,896,542	--------
Indiana	2,700,876	-------	Utah	373,351	1,487
Iowa	2,224,771	-------	Vermont	355,956	--------
Kansas	1,690,949	-------	Virginia	2,061,612	--------
Kentucky	2,289,905	-------	Washington	1,141,990	1,856
Louisiana	1,656,388	-------	West Virginia	1,221,119	--------
Maine	742,371	-------	Wisconsin	2,333,860	1,007
Maryland	1,295,346	-------	Wyoming	145,965	1,307
Massachusetts	3,366,416	-------	Total for 46 states	91,109,542	37,425
Michigan	2,810,173	-------	Arizona	204,354	24,129
Minnesota	2,075,708	1,332	New Mexico	327,301	10,318
Mississippi	1,797,114	-------	Total, including Arizona and New Mexico	91,641,197	71,872
Missouri	3,293,335	-------	District of Columbia	331,069	--------
Montana	376,053	9,715	Total for continental U. S.	91,972,266	--------
Nebraska	1,192,214	-------			
Nevada	81,875	1,582			
New Hampshire	430,572	-------			
New Jersey	2,537,167	-------			
New York	9,113,614	4,680			
North Carolina	2,206,287	-------			

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Area of the United States in Land and Water.

[Based upon careful joint calculations made in the General Land Office, the Geological Survey, and the Bureau of the Census.]

State or territory	Land surface		Water surface		Total areas	
	Square miles	Acres	Square miles	Acres	Square miles	Acres
Alabama	51,279	32,818,560	719	460,160	51,998	33,278,720
Arizona	113,810	72,838,400	146	93,440	113,956	72,931,840
Arkansas	52,525	33,616,000	810	518,400	53,335	34,134,400
California	155,652	99,617,280	2,645	1,692,800	158,297	101,310,080
Colorado	103,658	66,341,120	290	185,600	103,948	66,526,720
Connecticut	4,820	3,084,800	145	92,800	4,965	3,177,600
Delaware	1,965	1,257,600	405	259,200	2,370	1,516,800
Dist. of Columbia	60	38,400	10	6,400	70	44,800
Florida	54,861	35,111,040	3,805	2,435,200	58,666	37,546,240
Georgia	58,725	37,584,000	540	345,600	59,265	37,929,600
Idaho	83,354	53,346,560	534	341,760	83,888	53,688,320
Illinois	56,043	35,867,520	622	398,080	56,665	36,265,600
Indiana	36,045	23,068,800	309	197,760	36,354	23,266,560
Iowa	55,586	35,575,040	561	359,040	56,147	35,934,080
Kansas	81,774	52,335,360	384	245,760	82,158	52,581,120
Kentucky	40,181	25,715,840	417	266,880	40,598	25,982,720
Louisiana	45,409	29,061,760	3,097	1,982,080	48,506	31,043,840
Maine	29,895	19,132,800	3,145	2,012,800	33,040	21,145,600
Maryland	9,941	6,362,240	2,386	1,527,040	12,327	7,889,280
Massachusetts	8,039	5,144,960	227	145,280	8,266	5,290,240
Michigan	57,480	36,787,200	500	320,000	57,980	37,107,200
Minnesota	80,858	51,749,120	3,824	2,447,360	84,682	54,196,480
Mississippi	46,362	29,671,680	503	321,920	46,865	29,993,600
Missouri	68,727	43,985,280	693	443,520	69,420	44,428,800
Montana	146,201	93,568,640	796	509,440	146,997	94,078,080
Nebraska	76,808	49,157,120	712	455,680	77,520	49,612,800
Nevada	109,821	70,285,440	869	556,160	110,690	70,841,600
New Hampshire	9,031	5,779,840	310	198,400	9,341	5,978,240
New Jersey	7,514	4,808,960	710	454,400	8,224	5,263,360
New Mexico	122,503	78,401,920	131	83,840	122,634	78,485,760
New York	47,654	30,498,560	1,550	992,000	49,204	31,490,560
North Carolina	48,740	31,193,600	3,686	2,359,040	52,426	33,552,640
North Dakota	70,183	44,917,120	654	418,560	70,837	45,335,680
Ohio	40,740	26,073,600	300	192,000	41,040	26,265,600
Oklahoma	69,414	44,424,960	643	411,520	70,057	44,836,480
Oregon	95,607	61,188,480	1,092	698,880	96,699	61,887,360
Pennsylvania	44,832	28,692,480	294	188,160	45,126	28,880,640
Rhode Island	1,067	682,880	181	115,840	1,248	798,720
South Carolina	30,495	19,516,800	494	316,160	30,989	19,832,960
South Dakota	76,868	49,195,520	747	478,080	77,615	49,673,600
Tennessee	41,687	26,679,680	335	214,400	42,022	26,894,080
Texas	262,398	167,934,720	3,498	2,238,720	265,896	170,173,440
Utah	82,184	52,597,760	2,806	1,795,840	84,990	54,393,600
Vermont	9,124	5,839,360	440	281,600	9,564	6,120,960
Virginia	40,262	25,767,680	2,365	1,513,600	42,627	27,281,280
Washington	66,836	42,775,040	2,291	1,466,240	69,127	44,241,280
West Virginia	24,022	15,374,080	148	94,720	24,170	15,468,800
Wisconsin	55,256	35,363,840	810	518,400	56,066	35,882,240
Wyoming	97,594	62,460,160	320	204,800	97,914	62,664,960
	2,973,890	1,903,289,600	52,899	33,855,360	3,026,789	1,937,144,960
Alaska					590,884	378,165,760

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TABLE VIII.

Color and Nativity of Farmers.

Counties	Native white	Foreign-born white	Negro and other non-white	Total number of farmers
Alameda	866	1,490	66	2,422
Alpine	24	16	2	42
Amador	387	145	5	537
Butte	1,204	274	22	1,500
Calaveras	420	207	5	632
Colusa	547	112	8	667
Contra Costa	712	715	38	1,465
Del Norte	62	46	6	114
El Dorado	551	150	15	716
Fresno	3,968	2,033	244	6,245
Glenn	502	160	1	663
Humboldt	856	614	64	1,534
Imperial	1,077	143	102	1,322
Inyo	313	98	27	438
Kern	818	298	51	1,167
Kings	1,312	475	50	1,837
Lake	478	122	3	603
Lassen	412	77	13	502
Los Angeles	5,682	1,613	624	7,919
Madera	419	131	23	573
Marin	138	360		498
Mariposa	253	63	14	330
Mendocino	966	363	27	1,356
Merced	1,054	780	22	1,856
Modoc	639	80	17	736
Mono	44	42	5	91
Monterey	933	676	49	1,658
Napa	1,006	527	4	1,537
Nevada	349	184	11	544
Orange	2,362	718	85	3,165
Placer	619	263	180	1,062
Plumas	155	63	3	221
Riverside	2,044	517	127	2,688
Sacramento	885	485	231	1,601
San Benito	616	289	16	921
San Bernardino	2,365	567	17	2,949
San Diego	1,591	586	121	2,298
San Francisco	30	118	9	157
San Joaquin	2,179	977	130	3,286
San Luis Obispo	929	767	18	1,714
San Mateo	258	390	17	665
Santa Barbara	874	448	33	1,355
Santa Clara	2,725	1,860	146	4,731
Santa Cruz	851	588	27	1,466
Shasta	825	151	34	1,010
Sierra	77	32	1	110
Siskiyou	852	218	44	1,114
Solano	620	449	74	1,143
Sonoma	2,737	2,012	23	4,772
Stanislaus	1,879	801	7	2,687
Sutter	696	154	23	873
Tehama	799	188	19	1,006
Trinity	235	55	18	308
Tulare	3,253	707	61	4,021
Tuolumne	241	143	2	386
Ventura	965	307	21	1,293
Yolo	934	255	66	1,255
Yuba	338	91	7	436
Totals	58,926	26,193	3,078	88,197

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PART II.

AGRICULTURE.

FARMS AND FARMERS.

Number and Value of Farms, Size of Farms, Mortgage Debt on Farms, Improved and Unimproved Farm Land.

DOMESTIC ANIMALS.

Horses, Cattle, Sheep, Swine, 1869-1912; Domestic Animals by Counties; Poultry, Butter and Cheese; Honey and Wax; Wool and Mohair.

California ranks second in land area and twelfth in population among the states of continental United States. The soils vary from heavy clay like "adobe" soils to sandy and gravelly loams.

Over one fourth (28 per cent) of the land area of the State is in farms. The average value of farm land per acre for the State as a whole is $47.16. Between 1900 and 1910 there was an increase of 21.6 per cent in the number of farms as compared with an increase of 60.1 per cent in the population.

During the same period farm property, which includes land, buildings, implements and machinery, and live stock (domestic animals, poultry and bees), increased in value $818,167,000, or 102.7 per cent.

The average value of a fully equipped farm is $18,308, an increase of $7,328 as compared with the average in 1900. The average value per acre of land alone rose from $21.87 in 1900 to $47.16 in 1910.

There are 58,926 native white farmers in the State; 26,193 foreign born, white, and 3.078 negro and other non-whites, or a total of 88,197.

In addition to 11,389,894 acres of improved land in farms, there is 4,541,767 acres of woodland, and 11,999,783 acres of other unimproved lands in farms, or a total of 27,931,444 acres.

Number, Area, and Value of Farms in 1900 and 1910.

	1900	1910	Increased per cent
Population	1,485,053	2,377,549	60.1
Number of farms	72,542	88,197	21.6
Land area of State, acres	99,898,880	*99,617,280	----------
Land in farms, acres	28,828,951	27,931,444	†3.1
Improved land in farms, acres	11,958,837	11,389,894	†4.8
Average acre per farm	397.4	316.7	†20.3
Total value of farm property	$796,527,955	$1,614,694,584	102.7
Land	630,444,960	1,317,195,448	108.9
Buildings	77,468,000	133,406,040	72.2
Implements and machinery	21,311,670	36,493,158	71.2
Domestic animals, poultry and bees	67,303,325	127,599,938	89.6
Average value of all property per farm	$10,980.00	$18,308.00	66.7
Average value of land per acre	21.87	47.16	115.6

*Due to the formation of the Salton Sea.

†Decreased. This apparent falling off is due in part to errors in the tabulation in the census of 1900, when certain tracts included in forest reserves in 1910 were included in farm land in 1900.

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Summary of Populations and Farms, 1850-1910.

Year	Population	Number of farms	Land on farms		Per cent of land area in farms
			All land	Improved	
1850	92,597	872	3,893,985	32,454	3.9
1860	379,994	18,716	8,730,034	2,468,034	8.8
1870	560,247	23,724	11,427,105	6,218,133	11.5
1880	864,694	35,934	16,593,742	10,669,698	16.7
1890	1,213,398	52,894	21,427,293	12,222,839	21.5
1900	1,485,053	72,542	28,828,951	11,958,837	28.9
1910	2,377,549	88,197	27,981,444	11,389,894	28.0

The tracts included in forest reserves, probably used for grazing purposes, but included under farm lands in 1900, have increased during the decade from about 9,000,000 to 28,000,000 acres. There was also an enormous decrease in the acreage of wheat, amounting to 2,205,188 or 82.2 per cent, which would account for the falling off in the improved acreage. Many farmers reported such land in 1900 as "unimproved."

Value of Farm Property.

The total wealth in the form of farm property is $1,614,695,000 of which 89.8 per cent is contributed by land and buildings, 7.9 per cent by live stock, and 2.3 per cent by implements and machinery. The value of land and buildings is $1,450,601,000, being a little more than double that for 1900. In 1850 the value was only $3,874,000.

The value of the different classes of farm property in 1910 was as follows:

Farm property	Value
Land	$1,317,195,448
Buildings	133,406,040
Implements and machinery	36,493,158
Domestic animals	123,024,652
Poultry	3,844,526
Bees	729,798
Total	$1,614,694,584

Summary of Values, 1850-1910.

Year	Total value	Land and buildings	Implements and machinery	Domestic animals, poultry, and bees
1850	$7,328,582	$3,874,041	$103,483	$3,351,058
1860	86,870,327	48,726,804	2,558,506	35,585,017
1870	184,521,470	141,240,028	5,316,690	37,964,752
1880	*311,997,443	262,051,282	8,447,744	*41,498,417
1890	*777,381,767	697,116,630	14,689,710	*65,575,427
1900	796,527,955	707,912,960	21,311,670	67,303,325
1910	1,614,694,584	1,450,601,488	36,493,158	127,599,938

*Includes estimated value of range animals.

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Size of Farms.

In California there is a great area of semiarid land utilized for grazing purposes only or left unutilized. Upon such lands are located many very large farms or ranches, and these explain the high average acreage per farm. Farms other than those used almost exclusively for grazing are not on the average unusually large, as compared with the average in other states. The average size of the California farm is 316.7 acres, compared with 4,465.6 in 1850; 466.4 acres in 1860; 481.7 in 1870, since which time it has decreased continually.

Summary of Farms by Acreage in California.

Acreage	1850	1860	1870	1880
Under 3 acres				143
3 acres and under 10		829	2,187	1,064
10 acres and under 20		1,102	1,086	1,430
20 acres and under 50		2,344	3,064	3,475
50 acres and under 100		2,428	3,224	3,969
100 acres and under 500		6,541	12,248	20,214
500 acres and under 1,000		538	1,202	3,108
1,000 acres and over		262	713	2,531
Total number of farms	872	18,716	23,724	35,934
Average acres per farm	4,465.6	466.4	481.7	461.8

Acreage	1890	1900	1910
Under 3 acres	401	1,492	1,269
3 acres and under 10	2,827	5,354	9,324
10 acres and under 20	4,010	8,236	11,932
20 acres and under 50	7,691	13,110	20,614
50 acres and under 100	5,796	8,067	10,801
100 acres and under 500	24,531	26,201	24,566
500 acres and under 1,000	4,367	5,329	5,119
1,000 acres and over	3,672	4,753	4,698
Total number of farms	53,295	72,542	88,197
Average acres per farm	405.0	397.4	316.7

Size of Farms, Improved and Unimproved, and Value.

Acreage	1850	1860	1870	1880
Total number of acres in farms	3,893,985	8,730,034	11,427,105	16,593,742
Acres of improved land	32,454	2,468,034	6,218,133	10,669,698
Acres of unimproved land	3,861,531	6,262,000	5,208,972	5,924,044
Per cent of farm land improved	0.8	28.3	54.4	64.3

Acreage	1890	1900	1910
Total number of acres in farms	21,427,293	28,828,951	27,931,444
Acres of improved land	12,222,839	11,958,837	11,389,894
Acres of unimproved land	9,204,454	16,870,114	16,541,550
Per cent of farm land improved	57.6	41.5	40.8

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TABLE

Number and Size of Farms

Counties	Under 3 acres	3 to 10 acres	10 to 20 acres	20 to 50 acres	50 to 100 acres
Alameda	148	589	405	424	204
Alpine				1	3
Amador	2	13	19	41	52
Butte	2	116	186	321	143
Calaveras		25	14	48	45
Colusa	1	31	35	85	42
Contra Costa	18	118	127	221	158
Del Norte		2	6	9	13
El Dorado		26	21	60	88
Fresno	6	267	598	3,240	951
Glenn		40	33	106	65
Humboldt	10	78	107	280	245
Imperial	51	46	56	182	227
Inyo	2	28	28	55	75
Kern	11	46	57	320	173
Kings	7	69	159	643	377
Lake	1	10	38	85	80
Lassen		9	4	12	32
Los Angeles	438	2,125	1,820	1,709	698
Madera		13	21	76	23
Marin	6	35	54	36	30
Mariposa		1	4	4	21
Mendocino		42	61	166	151
Merced	1	86	213	694	295
Modoc	5	18	13	21	44
Mono		3	1	1	4
Monterey	11	69	71	182	185
Napa	14	136	223	355	226
Nevada	7	61	36	77	69
Orange	28	531	802	1,043	351
Placer	2	52	109	289	206
Plumas		6	5	9	12
Riverside	42	462	596	614	262
Sacramento	12	167	237	321	170
San Benito	7	87	83	118	93
San Bernardino	76	567	918	703	278
San Diego	20	236	345	414	269
San Francisco	69	50	11	15	7
San Joaquin	9	204	531	797	397
San Luis Obispo	7	65	80	179	187
San Mateo	46	81	55	112	61
Santa Barbara	17	130	140	212	164
Santa Clara	68	773	1,186	1,317	562
Santa Cruz	18	226	198	384	293
Shasta	6	16	29	103	111
Sierra	1	6	3	4	5
Siskiyou	1	21	36	88	98
Solano	6	45	60	198	170
Sonoma	40	916	890	1,040	522
Stanislaus	13	153	319	1,046	439
Sutter		57	101	142	91
Tehama	7	34	119	198	102
Trinity	6	9	9	24	23
Tulare	9	171	390	1,247	647
Tuolumne	1	4	15	28	27
Ventura	13	87	120	199	214
Yolo	4	53	115	283	166
Yuba		13	20	33	34
Totals	1,269	9,324	11,932	20,614	10,680

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IX.

In 1910, by Counties.

100 to 175 acres	175 to 260 acres	260 to 500 acres	500 to 1,000 acres	1,000 acres and over	Total number of farms	Cost of fertilizers	
						1900	1910
238	116	163	91	44	2,422	$15,180	$17,723
4	9	14	3	8	42	----------	----------
145	64	105	58	38	537	2,140	208
220	127	171	116	98	1,500	21,150	24,935
171	60	127	80	62	632	840	694
90	30	129	104	120	667	8,640	266
256	147	206	140	74	1,465	10,990	1,879
31	11	23	10	9	114	----------	77
212	100	122	52	35	716	2,010	467
609	142	202	119	111	6,245	39,870	34,491
79	31	101	89	119	663	60	906
334	118	147	84	131	1,534	8,750	1,680
400	98	201	51	10	1,322	----------	681
113	41	54	22	20	438	90	221
222	55	116	82	85	1,167	4,420	1,430
287	77	133	42	43	1,837	920	790
144	60	84	53	48	603	170	40
117	51	130	84	63	502	8,700	63
531	192	207	114	85	7,919	200,310	669,152
151	27	66	59	137	573	300	608
35	40	72	111	79	498	4,000	35
97	15	101	51	36	330	420	60
334	131	193	124	154	1,356	5,330	866
165	46	89	100	167	1,856	4,730	3,609
229	68	171	92	75	736	4,280	5
27	12	16	10	17	91	500	----------
263	127	282	225	243	1,658	2,920	1,252
223	92	112	84	72	1,537	12,690	1,290
88	53	84	41	28	544	5,430	932
175	60	86	52	37	3,165	16,520	71,118
174	69	75	50	36	1,062	13,680	7,786
45	19	37	46	42	221	70	260
262	99	166	104	81	2,688	203,010	323,568
223	96	173	111	91	1,601	2,190	15,274
107	56	144	109	117	921	3,620	191
209	70	75	35	18	2,949	151,320	708,516
337	146	246	156	129	2,298	22,980	42,429
4	1	----------	----------	----------	157	5,600	6,031
395	217	371	221	144	3,286	20,750	10,657
267	123	304	288	214	1,714	2,200	1,027
90	52	67	60	41	665	2,070	13,450
185	105	138	93	171	1,355	8,870	8,133
376	141	147	75	86	4,731	25,490	16,708
188	60	52	25	22	1,466	1,450	3,537
300	96	190	93	66	1,010	990	1,086
25	4	19	18	25	110	1,310	140
388	84	199	124	75	1,114	3,890	571
167	89	156	144	108	1,143	17,700	4,142
508	233	299	202	122	4,772	12,030	12,585
192	83	125	142	175	2,687	1,570	23,180
123	84	123	78	74	873	1,000	80
151	51	119	86	139	1,006	15,720	685
148	23	41	15	10	308	170	170
597	198	364	197	201	4,021	8,900	41,765
105	35	88	43	40	386	2,220	1,347
207	142	155	90	66	1,293	8,780	57,432
170	83	189	107	85	1,255	16,110	5,050
82	30	93	64	67	436	1,700	2,765
12,015	4,689	7,862	5,119	4,693	88,197	$937,050	$2,143,993

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Of all the farms in California 23.4 per cent are from 20 to 49 acres in size, 13.6 per cent from 100 to 174 acres, 13.5 per cent from 10 to 19 acres, and 12.1 per cent from 50 to 99 acres. Thus over three fifths of all the farms are from 10 to 174 acres in size. About one fourth are 175 acres or more. The increase in the relative number of the smaller farms in conjunction with the decline in aggregate farm acreage during the last ten years indicates a tendency to subdivide the large farms into smaller ones.

The following table shows the increase or decrease in the size of farms in 1910, as compared with 1900:

Size	Number of farms		Increase or decrease	
	1900	1910	Number	Per cent
Under 3 acres	1,492	1,269	−223	−14.9
3 to 9 acres	5,354	9,324	+3,970	+74.2
10 to 19 acres	8,236	11,932	+3,696	+44.9
20 to 49 acres	13,110	20,614	+7,504	+57.2
50 to 99 acres	8,067	10,680	+2,613	+32.4
100 to 174 acres	13,196	12,015	−1,181	−8.9
175 to 259 acres	4,635	4,689	+54	+1.2
260 to 499 acres	8,370	7,862	−508	−6.1
500 to 999 acres	5,329	5,119	−210	−3.9
1,000 acres and over	4,753	4,693	−60	−1.3
Totals	72,542	88,197	+15,655	+21.6

Farm Tenure.

The number of all farmers is 88,197. Of these 66,632 are classed as owners, 3,417 as managers, and 18,148 as tenants.

Of the 66,632 owners, 56,500 operate land owned exclusively by them, while 10,132 operate land which they rent in addition to that which they own. The owners hold 75.5 per cent of all farms, tenants 20.6 per cent, and 3.9 per cent is operated by managers. The percentage of tenants for the State (20.6) is above the average for the Pacific States (17.2) but low in comparison with the percentage for the United States as a whole (37).

Farm Mortgages.

The number of mortgaged farms in 1910 amounted to 40.5 per cent of the total number of 66,632 owned by farmers who own all their land, exclusive of those for which no mortgage report was obtained. The percentage is considerably higher than it was in 1890 and 1900:

Owned farms	Number
Free from mortgage	39,368
Mortgaged	26,749
Unknown	515
Total	66,632

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TABLE X.

Mortgage Debt on Farms Operated by Owners in 1910.*

Counties	Number free from mortgage	Number with mortgage	Number with no mortgage	Farms consisting of owned land only			
				Number reporting debt	Value of their land and buildings	Amount of mortgage	Per cent value of land and buildings
Alameda	1,204	467	19	384	$3,691,870	$958,687	26.0
Alpine	22	10		8	87,050	30,800	35.4
Amador	364	72	1	62	347,628	86,515	24.9
Butte	745	470	15	385	3,325,191	807,233	24.3
Calaveras	456	95	5	71	357,205	95,080	26.6
Colusa	251	196	2	123	1,443,045	444,355	30.8
Contra Costa	642	243	5	184	2,122,140	574,965	27.1
Del Norte	59	20		16	137,300	44,900	32.7
El Dorado	492	145	5	127	567,100	161,873	28.5
Fresno	2,072	3,128	27	2,734	24,983,327	6,388,563	25.6
Glenn	291	220	1	170	1,708,360	403,568	23.7
Humboldt	687	293	11	230	2,436,615	611,134	25.1
Imperial	584	236	4	194	2,867,600	697,384	24.3
Inyo	254	106	1	96	1,184,200	277,142	19.2
Kern	530	311	5	256	2,764,650	751,974	27.2
Kings	642	747	2	587	5,888,820	1,541,990	26.2
Lake	346	132	6	107	847,400	213,200	25.2
Lassen	290	122	2	108	1,464,400	272,163	18.6
Los Angeles	3,176	2,321	102	1,889	31,540,310	6,465,025	20.5
Madera	294	114	11	77	1,182,365	190,817	16.1
Marin	118	73	5	65	664,175	259,074	39.0
Mariposa	242	39	11	35	250,720	52,275	20.8
Mendocino	796	266	7	225	1,832,841	453,647	24.8
Merced	613	782	10	584	6,570,345	1,409,143	21.4
Modoc	432	159	3	130	1,786,230	354,669	19.9
Mono	63	12		10	230,900	52,350	22.7
Monterey	749	295	19	222	3,002,171	755,391	25.2
Napa	750	411	5	358	2,905,375	745,253	25.7
Nevada	398	76	2	63	260,165	56,270	21.6
Orange	1,294	1,228	9	957	12,557,760	2,934,955	23.4
Placer	478	269	1	217	1,614,735	371,680	23.0
Plumas	131	51	1	43	566,940	113,354	20.0
Riverside	1,279	996	16	816	11,969,410	2,953,463	24.7
Sacramento	673	326	12	273	3,894,145	840,241	21.6
San Benito	385	262	6	210	2,354,830	767,233	32.6
San Bernardino	1,344	1,178	10	961	17,434,500	3,958,213	22.7
San Diego	1,339	501	5	342	3,235,500	732,270	22.6
San Francisco	57	14	11	9	126,600	30,250	23.9
San Joaquin	1,181	1,172	17	887	8,729,605	2,272,853	26.0
San Luis Obispo	710	341	5	193	1,779,070	489,925	27.5
San Mateo	249	47	6	39	610,350	103,505	17.0
Santa Barbara	533	227	4	134	2,790,140	706,315	25.3
Santa Clara	2,092	1,500	30	1,186	11,700,415	3,391,948	29.0
Santa Cruz	671	410	7	357	3,667,630	815,705	22.2
Shasta	658	177	4	147	919,980	211,200	23.0
Sierra	72	21		17	160,500	48,350	30.1
Siskiyou	688	251	9	210	2,760,855	683,580	24.8
Solano	441	328	4	237	3,732,565	992,293	26.6
Sonoma	2,254	1,498	19	*1,399	11,018,235	3,009,142	27.3
Stanislaus	890	1,301	9	972	9,721,155	2,394,773	24.6
Sutter	362	307	5	225	3,076,708	785,106	25.5
Tehama	518	288	4	241	2,061,515	543,342	26.4
Trinity	233	40	1	36	221,425	51,498	23.3
Tulare	1,778	1,511	18	1,197	15,911,023	3,263,701	20.5
Tuolumne	269	71	2	63	378,650	98,677	26.1
Ventura	497	393	5	229	6,013,275	1,098,618	18.3
Yolo	482	397	8	283	4,329,746	1,154,656	26.7
Yuba	248	83	1	50	417,430	114,374	27.4
Totals	39,368	26,749	515	21,430	$250,199,190	$60,036,660	24.0

*No mortgage reports were secured for farms operated by tenants or managers.

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Irrigation.[1]

Of the 88,197 farms in the State 39,352, or rather more than two fifths (44.6 per cent), are irrigated. The total acreage irrigated is 2,664,104 acres, or 23.4 per cent of the improved land in farms. The enterprises existing in 1910 were capable of supplying water to 3,619,378 acres, and the total acreage included in irrigation projects, completed or under way, was 5,490,360 acres.

The following table shows the number of farms irrigated in comparison with the total number of farms in the State, the total land area, the total land in farms, and the total acreage of improved land in farms, together with the areas not yet irrigated for which water was available, and the acreage included in projects completed or under way:

Land and farms	1900	1910	Increase or decrease	
			Amount	Per cent
Number of all farms	72,542	88,197	15,655	21.6
Approximate land area of State	99,617,280	99,617,280	----------	----------
Land in farms	28,828,951	27,931,444	—897,507	—3.1
Improved land in farms	11,958,837	11,389,894	—568,943	—4.8
Number of farms irrigated	25,675	39,352	13,677	53.3
Acreage irrigated	1,446,114	2,664,104	1,217,990	84.2
Acreage enterprises capable of irrigating	*	3,619,378	----------	----------
Acreage included in projects	*	5,490,360	----------	----------
Percentage irrigated of number of all farms	35.4	44.6	9.2	----------
Approximate land area of State	1.5	2.7	1.2	----------
Land in farms	5.0	9.5	4.5	----------
Improved land in farms	12.1	23.4	11.3	----------
Excess of acreage enterprises were capable of irrigating over acreage irrigated in 1910	----------	955,274	----------	----------
Excess of acreage included in projects over acreage irrigated in 1910	----------	2,826,256	----------	----------

[1]For complete details see Part VI.
*No record.

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TABLE XI.

Improved and Unimproved Farm Land by Counties, 1910.

Counties	Number of farms	Average acreage of farms	Improved land	Wood land in farms	Other unimproved land	Total land in farms
Alameda	2,422	128.5	177,314	51,484	82,529	311,327
Alpine	42	762.0	7,579	7,597	16,628	32,004
Amador	537	543.3	46,969	114,960	129,801	291,730
Butte	1,500	327.2	247,097	119,126	124,554	490,777
Calaveras	632	429.4	59,104	149,642	62,655	271,401
Colusa	667	783.2	336,509	38,252	147,615	522,376
Contra Costa	1,465	277.4	262,152	28,766	115,515	406,433
Del Norte	114	315.3	12,439	10,574	12,934	35,947
El Dorado	716	294.5	41,682	137,057	32,142	210,881
Fresno	6,245	177.2	590,205	93,194	423,217	1,106,616
Glenn	663	740.9	309,765	67,665	113,768	491,198
Humboldt	1,534	418.9	105,248	174,354	362,934	642,536
Imperial	1,322	169.1	176,069	1,138	46,395	223,602
Inyo	438	251.5	38,698	1,631	69,813	110,142
Kern	1,167	1,202.5	315,387	235,014	852,649	1,403,350
Kings	1,837	206.5	196,569	6,724	170,530	373,823
Lake	603	360.6	42,768	71,388	103,308	217,464
Lassen	502	589.1	122,057	27,688	145,983	295,728
Los Angeles	7,919	95.7	418,998	18,051	320,936	757,985
Madera	573	1,083.2	391,086	41,612	187,965	620,663
Marin	498	529.0	93,115	49,978	120,349	263,442
Mariposa	330	624.4	37,017	85,150	83,892	206,059
Mendocino	1,356	532.0	82,578	247,758	390,989	721,325
Merced	1,856	626.2	607,742	49,818	504,607	1,162,167
Modoc	736	557.2	164,784	75,668	169,682	410,134
Mono	91	1,271.1	43,382	8,303	63,987	115,672
Monterey	1,658	692.0	371,509	140,377	635,530	1,147,416
Napa	1,537	234.6	101,114	198,578	65,888	360,580
Nevada	544	322.4	24,542	48,449	102,407	175,398
Orange	3,165	117.4	189,463	4,476	177,753	371,692
Placer	1,062	233.6	98,606	32,194	117,278	248,080
Plumas	221	607.5	54,281	27,238	52,740	134,259
Riverside	2,688	198.8	278,151	30,231	212,424	520,806
Sacramento	1,601	295.5	275,682	20,964	176,398	473,044
San Benito	921	591.0	186,573	52,466	305,262	544,301
San Bernardino	2,949	70 7	136,625	23,137	48,634	208,396
San Diego	2,298	363.1	234,045	71,020	529,361	834,426
San Francisco	157	13.3	1,562	289	240	2,091
San Joaquin	3,286	232.2	611,762	35,387	115,899	763,048
San Luis Obispo	1,714	926.9	326,928	174,891	1,086,841	1,588,660
San Mateo	665	241.6	100,800	27,334	32,521	160,655
Santa Barbara	1,355	826.9	215,552	276,071	628,852	1,120,475
Santa Clara	4,731	155.3	237,170	153,835	343,814	734,819
Santa Cruz	1,466	107.3	66,875	44,157	46,276	157,308
Shasta	1,010	385.4	96,217	151,113	141,888	389,218
Sierra	110	765.6	30,794	18,168	35,258	84,220
Siskiyou	1,114	409.2	186,147	82,544	187,185	455,876
Solano	1,143	415.5	310,452	44,534	119,880	474,866
Sonoma	4,772	156.0	248,271	278,507	217,866	744,644
Stanislaus	2,687	241.7	512,189	18,756	118,447	649,392
Sutter	873	441.5	199,510	13,956	171,996	385,462
Tehama	1,006	909.8	186,642	206,234	522,351	915,227
Trinity	308	296.5	13,300	31,882	46,128	91,310
Tulare	4,021	259.9	507,024	161,360	376,847	1,045,231
Tuolumne	386	500.2	36,407	62,215	94,450	193,072
Ventura	1,293	425.5	213,868	56,061	280,270	550,199
Yolo	1,255	369.2	317,268	77,576	68,539	463,383
Yuba	436	571.3	94,250	70,175	84,683	249,108
Totals	88,197	av. 316.7	11,389,894	4,541,767	11,999,783	27,931,444

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Farm Animals in 1913.

During the past year the number of farm horses decreased slightly, from 503,000 to 498,000, and the average price declined from $109 to $100, the number imported increased from 6,607 to 10,008, but the exports decreased from 34,828 to 28,707.

The number of mules remain about the same, but the average value declined from $130 to $120.

Milch cows increased from 510,000 to 515,000 and the average price advanced from $54.50 to $62.00.

The number of other cattle fell off from 1,454,000 to 1,410,000, but the average value increased from $29.20 to $33.00. The number imported for breeding purposes fell from 2,129 to 1,388, but the total number of other cattle imported made a total increase of 103,277, the figures being 421,649, compared with 318,372 for the year 1912.

The domestic cattle exported show a large decrease, viz: from 105,506 to 24,714.

Sheep numbered 2,551,000 against 2,603,000 in 1912, and the average value increased from $3.70 to $3.80. The imports for breeding purposes, as for cattle, show a heavy falling off, from 2,208 to 388; the total number of all kinds decreased from 23,588 to 15,428; but the number of domestic sheep exported increased about 30,000, from 157,263 to 187,132.

Swine declined (for the third year in succession) from 822,000 to 797,000, but the average value increased from $9.20 to $10.50 and the exports declined from 19,038 to 15,332.

Great Increase in the Number and Value of Horses—1909-1910.*

When street cars began to be generally used, horses were increasing at the most rapid rate ever known. There was more breeding carried on then than at any other time, and between 1884 and 1895 the supply began to overtake the demand. The cable and the electric system of street railways followed, and by 1895 had practically displaced horses.

The introduction of bicycles, a few years later followed by automobiles, caused it to be predicted that horses would not be in general use much longer, and that breeding could never be made to pay in the future. Statistics, however, prove that these fears were unfounded. The census reports show that in 1910 horses and colts had a greater value than any other class of domestic animals, whereas cattle had the greater value in 1900, being then nearly twice as valuable as horses and colts.

The total value of horses and colts in 1910 was $47,999,196, compared with $17,845,000 in 1900, or an increase of $29,254,203, or 163.9 per cent.

Mules and mule colts were valued at $9,016,444, an increase of $4,405,535 since 1900, an increase of 95 per cent.

Asses and burros in 1910 were valued at $347,315 as against $147,000 in 1900, an increase of $200,618, or 136 per cent.

The introduction of the Norman, Percheron, English Draft, and other breeds of stallions, and the crossing of these with native stock, have, since 1870, greatly improved the average effectiveness of the American horse.

*For a description of the various breeds of horses, see Report for 1912, pages 23-24.

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About 1896 a large demand began for American horses abroad. Exportation was at first stimulated by the exceedingly low prices of horses in the United States, and later by the demand for South Africa during the Boer war of 1899–1902, during which period there was a great demand, and also for mules, as the accompanying figures show, and prices consequently increased rapidly.

The average price of mules exported increased from $76.52 in 1899, to $121.47 in 1903, and to $162.50 in 1911, the highest ever touched.

Registration of Stallions.

Within the past seven years eighteen different states have passed laws requiring that all owners of stallions or jacks, before standing them for public service, shall obtain a license for each animal from the state board created for that purpose. This board examines all pedigree certificates and veterinarians' certificates of soundness submitted, and enrolls and issues license certificates for all stallions and jacks entitled to such enrollment in accordance with the law.

The details of these laws vary somewhat in different states, but all are more or less founded on the Wisconsin act, which was the pioneer state in this matter, and all require the submission of certificates of registration in studbooks certified by the United States Department of Agriculture, as evidence of the purity of breeding of stallions licensed as purebred, except that some provide in addition that stallions shall be accepted as purebred which are registered in studbooks of any American studbook or registry association which recognizes and records stallions having five pure top crosses.

That the state stallion law marks a distinct step in advance in our horse-breeding industry is hardly to be questioned. One of the first results of the operation of these laws was to provide data which show the actual facts with regard to the stallions being used for breeding purposes. Other important beneficial results are the rapid elimination of unfit animals and greater care with regard to breeding and registration. The various breeds and the numbers are of considerable interest. No pony-stallions have been registered.

The following summary shows the changes that have taken place during the years 1912–1913:

Breed	Number		Breed	Number	
	1912	1913		1912	1913
Mongrel	766	707	Crossbred	10	6
Percheron	419	463	Norman	3	5
Standard	165	279	Non-Standard	2	4
American Trotter	150	2	Hackney	2	4
Belgian	146	159	Suffolk	1	1
Shire	94	88	Cleveland Bay	1	1
German Coach	65	53	Not classified	-------	13
French Draft	57	57			
Clydesdale	29	33	Total	1,957	1,920
French Coach	26	23	Jacks	77	358
Thoroughbred	11	15			
American Saddle	10	7	Grand total	2,034	2,278

The total number of registered stallions in the State is 1,920, a decrease of 37 compared with last year. On the other hand, the number of jacks registered shows the remarkable increase of 281, the number

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being 358, compared with 77 last year. There are 707 classed as mongrels, a decrease of 59 during the year, which is satisfactory. The principal breeds are Percheron, Standard, and Belgian in the order named. Only two counties have more than one hundred stallions—San Joaquin 121, and Fresno 109, Tulare being third with 99.

Neat Cattle.*

Considerable attention has been given to breeding cows for dairy purposes only, and with this object in view large importations have been made of the Jerseys, Guernseys and Alderneys.

The Shorthorns, Herefords, and Polled Angus comprise practically all of the pure-blooded cattle in the United States used for breeding and for grading up native cattle for beef purposes. There are now also a number of Holstein-Friesian and Durhams.

Working Oxen.

In the early days oxen were largely employed in farming operations. In 1860, they numbered upward of 26,000, but the number declined rapidly during the next ten years, and after 1890 they dwindled away.

During forty years the numbers varied as follows:

Years	Number
1850	4,780
1860	26,004
1870	5,944
1880	2,288
1890	1,122

Asses and Burros.

In 1832, Henry Clay, who was a great advocate of the use of mules, brought the first pure-blooded Catalonian jack to Kentucky, and from then until the civil war quite a number of jacks were imported. With the revival of business after the war, there was a great demand for jacks, and they were imported from all the Mediterranean countries.

Until this time there had been but two breeds of asses generally recognized in this country, the Maltese and Spanish. The importations into Tennessee and Kentucky have resulted in the production of a native type that is regarded by some breeders as better than any now imported.

There are also a large number of small donkeys, or burros, descendants of the small asses brought into Mexico and New Mexico at the early settlement of that section by the Spaniards, and are used principally by the Spanish and Mexican element. They are most useful in the mountainous sections.

Sheep.

In 1565, Spanish sheep were introduced into Florida, and those in that state to-day preserve traces of their Spanish origin. In 1773 they were introduced into California, and under the care of the Missions rapidly increased until, in 1825, it was estimated that seventeen of these Missions, extending from San Diego to San Francisco, held an aggregate of 1,003,970 sheep, exclusive of flocks owned by ranchers.

It was claimed by earlier authorities that these sheep were Merinos, but more recent authorities affirm that they were the Churro, or common, sheep of Spain. The Merino is supposed to have originated in

*For a description of the various breeds of cattle, see Report for 1912, pages 26-27.

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Asia Minor. The period from 1845 to 1855 marks the transition from fine wool sheep to coarse wool and mutton sheep.

The principal breeds now are Southdown, Shropshire, Leicestershire, Cotswold, Oxford Down, Hampshire Down, Dorset Horns, Spanish and French Merino, and Persian.

Sheep, of which at one time there were very large flocks, have fallen off since the year 1880, when they numbered 4,152,349; in 1910 there were 2,417,477, or a decrease of 1,734,872 since the former year.

Goats.

The Angora goat, a native of Asia Minor, was introduced into this country in 1849, and has been bred extensively in the United States. It crosses readily with the common goat, and the cross-breed frequently becomes the foundation of a good flock of fleece-bearing animals. The common goat has often been described as the poor man's cow. The Angora goat has been found to be of great service in clearing land of brush and low growths that sheep and cattle will not touch. The meat of the kids is said to be fully equal to the best young lamb, from which it is difficult to distinguish it.

High land is the native home of the goat, and it invariably seeks it when left to itself. It will feed with cattle and sheep, and also with horses, though in some danger of being kicked.

In southern California, the goats are sheared both in the spring and fall, as is customary with sheep in the same regions. The reason for this is that if the hair is allowed to grow the goats shed it and the production is in consequence much less in amount. The double shearing results in the production of a fibre of shorter length than if the fleeces were allowed a full year's growth, and averages about 5 inches for the spring and 7 inches for the fall clip. In northern California the hair is shorn only once in the year and will average 8 to 9 inches in length. Angoras are among the most useful of domestic animals. Their fleeces, called the mohair, furnish material for the manufacture of some of the finest fabrics, their flesh is exceedingly delicate and nutritious, and their milk is richer than that of a cow.

The number of goats of all kinds in 1910 was 138,000, the lead being taken by Tehama County, with 28,000, and Shasta, with 18,000. Lake and Mendocino counties lead in Angora goats, having upward of 5,000 each.

Swine.

The swine introduced into the United States by the early colonists were of inferior stock. Between 1818 and 1830, the Chester White was evolved. The Berkshire was introduced from England about 1830, but did not come into general favor until 1870 to 1880. The Poland-China originated in Ohio between 1838 and 1840. Other breeds are Yorkshires and Hampshires. The interest in swine breeding in recent years is illustrated by the dates of first registration of the different Swine Breeders' Associations, which were as follows: American Berkshire, 1875; Standard Poland-China, 1877; Central Poland-China, 1879; American Chester White, 1884; American Essex, 1887; American Duroc-Jersey, and Standard White, 1890.

As a result of this interest, swine in this country have attained a high standard, with regard to form, bone, and line of maturity.

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Sheep.

Sheep, of which at one time there were very large flocks, have fallen off since the year 1880, when they numbered 4,152,349; in 1910 there were 2,417,477, or a decrease of 1,734,872 since the former year.

The following statement shows at a glance the changes that have taken place in the number of domestic animals during the last sixty years:

Summary of the Number of Domestic Animals, 1850-1910.

Year	Horses and colts	Mules and colts	Cows and calves	Other cattle	Sheep and lambs	Swine
1850	21,719	1,666	4,280	258,379	17,574	2,776
1860	160,610	3,681	205,407	974,735	1,088,002	456,396
1870	192,273	17,533	164,093	467,305	2,768,187	444,617
1880	237,710	28,343	210,078	604,966	5,727,349	*868,419
1890	*455,073	*53,627	317,201	*1,291,217	3,373,036	*594,009
1900	421,293	96,190	307,245	*1,137,379	2,803,509	598,336
1910	468,886	69,761	467,332	1,609,693	2,417,477	766,551

Prior to 1890, asses and burros were included with mules.
*Including estimated number of range animals separately reported.

RECOGNIZED BREED AND PUREBRED ANIMALS IMPORTED.

(Under an act of Congress, approved August 5, 1909, effective on and after February 1, 1912.)

HORSES.

Belgian Draft.
Clydesdale.
French Draft.
Hackney.
Percheron.
Shetland Pony.
Shire.
Suffolk.
Thoroughbred.
Welsh Pony and Cob.

CATTLE.

Aberdeen-Angus.
Alderney.
Ayrshire.
Devon.
Galloway.
Guernsey.
Hereford.
Highland.
Holstein-Friesian.
Jersey.
Kerry and Dexter.
Red Polled.
Shorthorn.
Sussex.
Welsh.

SHEEP.

Cheviot.
Cotswold.
Dorset Horn.
Hampshire Down.
Kent or Romney Marsh.
Kerry Hill.
Leicester.
Leicester [Border].
Lincoln.
Oxford Down.
Shropshire.
Southdown.
Suffolk.
Wensleydale.

HOGS.

Berkshire.
Large Black.
Tamworth.
Yorkshire.

Breeding Horses and Cattle Imported in 1913.

The Bureau of Animal Industry has listed all horses imported for breeding purposes in 1913, for which certificates of pure breeding have been issued by the Federal department. This list includes names of animals, their registration number, the name of the importer, and the department number of the various breeds.

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Horses.

Breed	Stallions	Mares	Total
Belgian	621	362	983
Clydesdale	45	53	98
Hackney	14	29	43
Percheron	882	600	1,482
Shetland Pony	4	26	30
Shire	128	57	185
Standardbred	1	2	3
Suffolk	12	26	38
Thoroughbred	14	14	28
Welsh Pony	12	95	107
Totals	1,733	1,264	2,997

Cattle.

The following table shows the number of certificated cattle imported for breeding purposes during 1913:

Breed	Bulls	Cows	Total
Aberdeen-Angus	4		4
Alderney	2	98	100
Ayrshire	23	103	186
Galloway	11	2	13
Guernsey	40	738	778
Hereford	35	33	68
Holstein-Friesian	10	16	26
Jersey	35	608	643
Shorthorn	84	122	206
Totals	244	1,780	2,024

Cattle not being native to America, there are no strictly American breeds, but owing to difference in climate, care and ideals of American breeders, the European breeds which have been brought to America have changed to some extent.

***Summary of All Domestic Animals and Their Value, 1910.**

Kind	On farms		Not on farms		Total	
	Number	Value	Number	Value	Number	Value
All cattle	2,077,025	$52,785,068	46,176	$1,604,717	2,123,201	$54,389,785
Dairy cows	467,332	18,597,328	29,962	1,321,897	497,294	19,919,225
Horses	468,886	47,099,196	132,521	15,142,841	601,407	62,242,037
Mules	69,761	9,016,444	10,612	1,638,381	80,373	10,654,825
Asses and burros	2,592	347,315	1,057	45,114	3,649	392,429
Swine	766,551	5,106,803	12,168	100,761	778,719	5,207,564
Sheep	2,417,477	8,348,997	64,631	232,572	2,482,108	8,581,569
Goats	138,413	320,829	7,113	32,629	145,526	353,458
Totals		$123,024,652		$18,797,015		$141,821,667

*Most of the domestic animals not on farms are found in cities, towns, and villages.

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CLASSIFIED SUMMARY OF DOMESTIC ANIMALS ON FARMS IN 1910.

Description	Number	Value	Average value
Cattle—			
Dairy cows (cows and heifers kept for milk, born before January 1, 1909)	467,332	$18,597,328	$39 79
Other cows (cows and heifers not kept for milk, born before January 1, 1909)	576,909	14,798,012	25 65
Heifers born in 1909	218,480	3,448,595	15 78
Calves born after January 1, 1910	267,799	1,883,523	7 03
Steers and bulls born in 1909	163,728	2,889,503	17 65
Steers and bulls born before January 1, 1909	321,984	9,941,169	30 87
Unclassified cattle	60,793	1,226,938	20 18
Totals	2,077,025	$52,785,068	av. $25 41
Horses and colts—			
Mares, stallions and geldings born before January 1, 1909	402,584	$43,770,557	$108 72
Colts born in 1909	41,927	2,389,191	56 98
Colts born after January 1, 1910	23,037	767,648	33 32
Unclassified horses	1,338	171,800	128 40
Totals	468,886	$47,099,196	av. $100 45
Mules and mule colts—			
Mules born before January 1, 1909	61,997	$8,552,021	$137 94
Mule colts born in 1909	4,913	351,667	71 58
Mule colts born after January 1, 1910	2,851	112,756	39 55
Totals	69,761	$9,016,444	av. $129 25
Asses and burros (all ages)	2,592	$347,315	av. $133 99
Swine—			
Hogs and pigs born before January 1, 1910	482,810	$4,346,824	$9 00
Pigs born after January 1, 1910	283,741	759,979	2 68
Totals	766,551	$5,106,803	av. $6 66
Sheep and lambs—			
Ewes born before January 1, 1910	1,217,515	$4,914,783	$4 04
Rams and wethers born before January 1, 1910	307,773	1,326,699	4 31
Lambs born after January 1, 1910	892,189	$2,107,515	av. $2 36
Totals	2,417,477	$8,348,997	av. $3 45
Goats and kids (all ages)	138,413	$320,829	av. $2 32
Grand total		$123,024,652	

Sheep and Wool, Goats and Mohair, in 1909-1910.

According to the Census Bureau, the total number of sheep of shearing age in California on April 15, 1910, was 1,525,000, representing a decrease of 11.6 per cent as compared with the number in 1900. The approximate production of wool during 1909 was 2,563,000 fleeces, weighing 14,065,000 pounds and valued at $2,424,000.

Although 1,714 farmers reported 138,413 goats and kids on their farms in 1910, only 367 reported the production of goat hair or mohair during 1909. These farmers reported 102,134 fleeces, weighing 282,596 pounds and valued at $60,821. The production shows a considerable increase between 1899 and 1909, but it is believed that the figures are somewhat short of the actual production.

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NUMBER AND VALUE OF FARM ANIMALS IN CALIFORNIA, 1869-1913, IMPORTS AND EXPORTS.

(Compiled from the reports of the United States Department of Agriculture.)

HORSES.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	226,634	$52 71	$11,945,878
1870	238,000	36 50	8,687,000
1871	204,800	50 26	10,293,248
1872	202,700	43 59	8,835,693
1873	250,000	44 15	11,037,500
1874	232,500	47 48	11,039,100
1875	230,100	41 61	9,574,461
1876	209,300	45 46	9,514,778
1877	260,000	39 50	10,270,000
1878	262,000	40 94	10,750,844
1879	273,000	43 95	11,998,350
1880	273,000	46 18	12,673,500
1881	281,990	45 03	12,698,010
1882	240,087	47 30	11,356,115
1883	240,567	54 89	13,204,723
1884	252,595	61 33	15,491,651
1885	265,225	62 05	16,457,211
1886	275,834	63 00	17,377,542
1887	289,626	64 00	18,534,948
1888	307,004	71 00	21,797,255
1889	368,400	70 19	25,857,259
1890	372,084	63 60	23,664,984
1891	360,921	67 22	24,262,579
1892	415,059	62 67	26,010,045
1893	518,824	57 48	29,821,982
1894	513,636	41 98	21,562,949
1895	513,636	31 94	16,404,965
1896	482,818	27 16	13,114,254
1897	439,364	27 40	12,037,918
1898	417,396	28 96	12,085,909
1899	342,265	27 54	9,426,483
1900	321,729	38 61	12,422,429
1901	363,982	49 66	18,074,805
1902	353,063	56 28	19,869,542
1903	370,716	60 66	22,485,881
1904	367,000	65 66	24,099,139
1905	363,339	67 48	24,518,741
1906	399,673	76 32	30,505,037
1907	391,680	92 00	36,120,721
1908	396,000	94 00	37,224,000
1909	412,000	90 00	37,080,000
1910	483,000	105 00	49,245,000
1911	493,000	117 00	57,681,000
1912	503,000	109 00	54,827,000
1913	498,000	100 00	49,800,000

Horses Imported.

Year	For breeding purposes*		Other horses		Total horses	
	Number	Value	Number	Value	Number	Value
1902	2,944	$1,273,607	1,888	$303,627	4,832	$1,577,234
1903	2,803	1,191,611	2,196	344,685	4,999	1,536,296
1904	2,634	1,090,596	2,092	369,691	4,726	1,460,287
1905	2,853	1,169,011	2,327	422,072	5,180	1,591,083
1906	3,377	1,266,987	2,644	449,688	6,021	1,716,675
1907	3,644	1,574,020	2,436	404,085	6,080	1,978,105
1908	3,562	1,325,784	1,925	278,608	5,487	1,604,392
1909	4,953	1,658,640	2,131	348,636	7,084	2,007,276
1910	7,867	2,660,241	3,753	635,781	11,620	3,296,022
1911	6,331	2,055,418	3,662	636,656	9,593	2,692,074
1912	3,849	1,579,377	2,758	343,648	6,607	1,923,025
1913	5,713	1,653,713	4,295	472,162	10,008	2,125,875

*Including teams of immigrants.

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Horses Exported.

Year	Number	Value
1902	103,020	$10,048,046
1903	34,007	3,152,159
1904	42,001	3,189,100
1905	34,822	3,175,259
1906	40,087	4,365,981
1907	33,882	4,359,957
1908	19,000	2,612,587
1909	21,616	3,386,617
1910	28,910	4,081,157
1911	25,145	3,845,253
1912	34,828	4,764,815
1913	28,707	3,960,102

Duty on Imported Horses.—For breeding purposes and of purebred and teams of immigrants, free. All others, 10 per cent ad valorem on October 4, 1913, and after.

MULES.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	24,249	$73 92	$1,792,486
1870	30,000	66 66	1,999,800
1871	21,400	65 64	1,404,696
1872	20,500	59 76	1,225,080
1873	25,000	71 06	1,776,500
1874	23,000	63 74	1,466,020
1875	23,200	66 49	1,542,568
1876	19,400	77 20	1,497,680
1877	26,500	67 75	1,795,375
1878	25,400	68 98	1,752,092
1879	25,700	66 24	1,702,368
1880	25,700	67 54	1,735,778
1881	25,700	68 79	1,767,903
1882	28,910	69 20	2,000,572
1883	30,066	70 98	2,134,085
1884	29,765	80 18	2,386,558
1885	31,551	84 30	2,659,749
1886	31,551	77 65	2,450,081
1887	36,284	83 67	3,035,912
1888	38,824	85 03	3,301,389
1889	40,765	83 78	3,415,201
1890	42,803	78 21	3,347,496
1891	43,659	79 41	3,467,093
1892	54,574	74 72	4,077,548
1893	60,031	67 90	4,076,130
1894	63,033	56 38	3,553,899
1895	63,033	46 25	2,915,041
1896	59,251	35 02	2,074,789
1897	57,473	36 89	2,120,329
1898	56,898	38 33	2,180,836
1899	52,915	34 15	1,807,174
1900	48,682	48 49	2,300,713
1901	77,452	60 44	4,681,555
1902	72,030	69 23	4,986,745
1903	67,708	72 02	4,876,600
1904	67,031	72 68	4,871,487
1905	66,361	76 39	5,069,044
1906	69,679	91 30	6,361,689
1907	80,750	106 00	8,599,875
1908	82,000	113 00	9,266,000
1909	83,000	107 00	8,881,000
1910	71,000	122 00	8,540,000
1911	72,000	136 00	9,792,000
1912	73,000	130 00	9,490,000
1913	73,000	120 00	8,760,000

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Mules Imported.

(Included in "All Other" Animals.)

Mules Exported.

Year	Number	Value
1902	27,586	$2,692,298
1903	4,294	521,725
1904	3,658	412,971
1905	5,826	645,464
1906	7,167	989,639
1907	6,781	850,901
1908	6,609	990,667
1909	3,432	472,017
1910	4,512	614,094
1911	6,585	1,070,051
1912	4,901	732,095
1913	4,744	733,795

Duty on Imported Mules.—Teams of immigrants, free. All others, 10 per cent ad valorem on October 4, 1913, and after.

MILCH COWS.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	214,318	$50 31	$10,782,338
1870	350,000	47 62	16,667,000
1871	186,800	46 36	8,660,048
1872	186,800	44 66	8,342,488
1873	270,000	43 44	11,728,800
1874	310,500	35 28	10,954,440
1875	340,000	32 19	10,944,600
1876	363,800	31 46	11,445,148
1877	381,900	30 64	11,701,416
1878	389,500	28 23	10,955,585
1879	459,600	25 90	11,903,640
1880	473,400	28 65	13,562,910
1881	473,400	31 67	14,992,578
1882	214,280	32 70	7,006,956
1883	214,280	36 17	7,750,508
1884	220,708	38 00	8,386,904
1885	231,743	38 50	8,922,106
1886	236,378	38 75	9,159,648
1887	243,469	33 22	8,088,040
1888	250,773	33 00	8,275,509
1889	258,296	31 38	8,105,328
1890	268,628	27 75	7,454,427
1891	282,059	29 00	8,179,711
1892	290,521	26 95	7,829,541
1893	299,237	27 25	8,154,208
1894	329,161	25 82	8,498,937
1895	339,036	23 78	8,062,276
1896	335,646	23 75	7,971,593
1897	339,002	25 57	8,668,281
1898	342,392	28 65	9,809,531
1899	318,425	28 00	8,915,900
1900	308,872	33 75	10,424,430
1901	321,227	37 10	11,917,522
1902	327,652	40 05	13,122,463
1903	337,482	40 43	13,664,397
1904	344,232	38 55	13,270,144
1905	354,559	36 57	12,966,223
1906	390,015	34 65	13,514,020
1907	405,616	35 00	14,196,560
1908	410,000	36 00	14,760,000
1909	430,000	36 00	15,480,000
1910	495,000	38 40	17,933,000
1911	505,000	53 00	26,765,000
1912	510,000	53 50	27,285,000
1913	515,000	62 00	31,930,000

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OTHER CATTLE.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	323,112	$27 86	$9,001,900
1870	550,000	26 22	14,421,000
1871	490,000	26 92	13,190,800
1872	465,500	23 80	11,078,900
1873	442,200	22 71	10,042,362
1874	428,900	19 52	8,372,128
1875	660,000	18 92	12,487,200
1876	1,075,000	20 08	21,586,000
1877	1,053,500	16 52	17,403,820
1878	1,600,800	17 23	17,243,784
1879	1,010,000	18 91	19,099,100
1880	999,900	18 47	18,468,153
1881	999,900	20 35	20,347,965
1882	422,433	21 77	9,196,366
1883	575,000	27 48	15,801,000
1884	609,500	29 15	17,766,925
1885	615,595	30 38	18,701,776
1886	627,907	28 66	17,994,559
1887	659,302	20 64	13,607,595
1888	692,267	20 50	14,194,447
1889	726,880	19 37	14,080,181
1890	697,805	16 80	11,719,707
1891	558,244	17 73	9,895,321
1892	602,904	17 39	10,481,663
1893	916,414	17 12	15,690,840
1894	925,578	16 17	14,962,157
1895	916,322	15 28	14,003,785
1896	888,832	15 82	14,057,319
1897	853,279	16 93	14,448,828
1898	810,615	18 91	15,328,334
1899	664,704	18 01	11,970,981
1900	604,881	24 57	14,864,947
1901	1,048,046	22 25	23,315,670
1902	1,089,968	23 48	25,593,770
1903	1,111,767	24 51	27,244,079
1904	1,089,532	21 98	23,944,214
1905	1,122,218	19 29	21,648,258
1906	1,167,107	17 52	20,453,549
1907	1,167,107	18 00	21,474,767
1908	1,155,000	19 00	21,945,000
1909	1,155,000	17 50	20,212,000
1910	1,546,000	20 10	32,361,000
1911	1,515,000	26 70	40,450,000
1912	1,454,000	29 20	42,457,000
1913	1,410,000	33 00	46,530,000

Cattle Imported

Year	For breeding purposes*		Other cattle		Total cattle	
	Number	Value	Number	Value	Number	Value
1902	1,928	$375,096	94,099	$1,233,626	96,027	$1,608,722
1903	1,481	225,875	64,694	935,673	66,175	1,161,548
1904	684	79,986	15,372	230,751	16,056	310,737
1905	2,314	93,084	25,541	365,488	27,855	458,572
1906	829	118,368	28,190	430,062	29,019	548,430
1907	835	122,230	31,567	442,892	32,402	565,122
1908	3,188	149,142	89,168	1,358,168	92,356	1,507,310
1909	3,049	140,713	136,135	1,858,709	139,184	1,999,422
1910	2,611	291,139	193,327	2,708,685	195,138	2,999,824
1911	2,441	362,220	180,482	2,590,857	182,923	2,953,077
1912	2,129	305,222	316,243	4,500,352	318,372	4,805,574
1913	1,388	234,489	420,261	6,406,179	421,649	6,640,668

*Including teams of immigrants.

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Cattle Exported.

Year	Number	Value
1902	392,884	$29,902,212
1903	402,178	29,848,936
1904	593,409	42,256,291
1905	567,806	40,598,048
1906	584,239	42,081,170
1907	423,051	34,577,392
1908	349,210	29,339,134
1909	207,542	18,046,976
1910	139,430	12,200,154
1911	150,100	13,163,920
1912	105,506	8,870,075
1913	24,714	1,177,199

Duty on Imported Cattle.—Free October 4, 1913, and after.

SHEEP.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	2,200,400	$2 53	$5,567,012
1870	3,750,000	2 56	9,600,000
1871	3,636,000	2 59	9,417,000
1872	3,672,300	2 78	10,208,994
1873	4,002,800	2 97	11,888,316
1874	4,683,200	2 31	10,818,192
1875	4,683,200	2 53	11,848,496
1876	6,750,000	2 02	13,635,000
1877	7,290,000	1 40	10,206,000
1878	6,561,000	1 52	9,972,720
1879	6,889,000	1 61	11,091,290
1880	7,646,800	1 62	12,387,816
1881	7,493,864	1 70	12,739,569
1882	6,352,344	1 65	10,481,368
1883	5,907,680	2 02	11,933,514
1884	6,203,064	1 90	11,785,822
1885	5,892,911	1 89	11,137,602
1886	6,069,698	1 81	10,961,268
1887	6,069,698	1 77	10,728,192
1888	5,462,728	1 88	10,291,779
1889	3,956,000	1 88	7,453,104
1890	4,035,120	2 08	8,409,190
1891	3,712,310	2 20	8,157,801
1892	4,083,541	2 42	9,884,211
1893	4,124,376	2 32	9,559,479
1894	3,918,157	1 81	7,074,625
1895	3,526,341	1 65	5,817,052
1896	2,962,126	1 85	5,483,784
1897	2,577,050	1 86	4,800,787
1898	2,589,935	2 23	5,785,915
1899	2,175,545	2 64	5,742,352
1900	2,001,501	2 85	5,710,282
1901	2,342,923	3 00	7,033,221
1902	2,319,494	2 90	6,729,085
1903	2,365,884	2 92	6,915,716
1904	2,271,249	2 75	6,237,758
1905	2,180,399	2 67	5,824,718
1906	2,398,439	3 03	7,273,266
1907	2,422,423	3 30	8,006,107
1908	2,422,000	3 47	8,404,000
1909	2,325,000	2 80	6,510,000
1910	2,683,000	3 30	9,694,000
1911	2,656,000	3 60	9,562,000
1912	2,603,000	3 70	9,631,000
1913	2,551,000	3 80	9,694,000

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Sheep Imported.

Year	For breeding purposes		Other sheep		Total sheep	
	Number	Value	Number	Value	Number	Value
1902	2,059	$46,663	264,894	$910,047	266,953	$956,710
1903	1,737	38,037	299,886	998,897	301,623	1,036,934
1904	1,253	23,298	236,841	791,991	238,094	815,289
1905	2,200	45,319	184,742	659,402	186,942	704,721
1906	2,679	53,951	238,068	966,408	240,747	1,020,359
1907	3,081	67,555	221,717	1,052,870	224,798	1,120,425
1908	5,609	104,509	219,156	978,097	224,765	1,082,606
1909	4,860	89,272	97,803	413,368	102,663	502,640
1910	6,335	135,019	119,817	561,860	126,152	696,879
1911	5,341	116,277	48,114	261,348	53,455	377,625
1912	2,208	29,106	21,380	128,151	23,588	157,257
1913	388	8,903	15,040	81,118	15,428	90,021

Export of Domestic Sheep.

Year	Number	Value
1902	358,720	$1,940,060
1903	176,961	1,067,860
1904	301,313	1,954,604
1905	268,365	1,687,321
1906	142,690	804,090
1907	135,344	750,242
1908	101,000	589,285
1909	67,656	365,155
1910	44,517	209,000
1911	121,491	636,272
1912	157,263	626,985
1913	187,132	605,725

Duty on Imported Sheep.—Free October 4, 1913, and after.

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SWINE.

Year	Number December 31	Average farm price December 31	Farm value December 31
1869	429,007	$5 52	$2,368,118
1870	750,000	4 47	3,352,500
1871	459,000	5 94	2,726,460
1872	440,600	5 05	2,225,030
1873	427,300	6 11	2,610,803
1874	448,600	6 16	2,763,376
1875	403,700	5 77	2,329,349
1876	363,300	7 17	2,604,861
1877	417,700	6 20	2,589,740
1878	438,500	6 27	2,749,395
1879	565,000	5 95	3,361,750
1880	661,000	3 97	2,624,170
1881	667,600	4 98	3,324,648
1882	585,443	6 20	3,629,747
1883	856,000	7 14	6,111,840
1884	950,160	5 66	5,377,906
1885	978,665	5 80	5,676,257
1886	1,027,598	4 15	4,266,586
1887	1,017,322	3 78	3,841,409
1888	1,047,842	4 62	4,836,000
1889	647,000	5 59	3,616,213
1890	647,000	4 91	3,175,476
1891	517,600	5 26	2,723,611
1892	512,424	5 35	2,741,675
1893	399,691	6 12	2,446,110
1894	435,663	5 57	2,427,342
1895	487,943	5 54	2,702,812
1896	507,461	4 03	2,045,677
1897	487,163	4 13	2,013,738
1898	467,676	4 08	1,906,247
1899	374,141	4 47	1,673,907
1900	329,244	6 26	2,061,068
1901	521,906	6 61	3,449,172
1902	506,249	6 79	3,439,457
1903	511,311	7 63	3,901,303
1904	526,650	6 55	3,449,558
1905	521,384	6 10	3,180,442
1906	573,522	5 45	3,125,695
1907	550,581	7 10	3,909,125
1908	551,000	7 20	3,967,000
1909	562,000	6 50	3,653,000
1910	790,000	8 20	6,289,000
1911	830,000	8 30	6,289,000
1912	822,000	9 20	7,562,000
1913	797,000	10 50	8,368,000

Swine Exported.*

Year	Number	Value
1902	8,368	$88,330
1903	4,031	40,923
1904	6,345	53,780
1905	44,496	416,692
1906	59,170	630,998
1907	24,262	309,440
1908	30,818	307,202
1909	18,655	144,605
1910	4,410	46,955
1911	8,551	74,032
1912	19,038	159,370
1913	15,332	151,747

*Swine imported are not given separately, but included under "All Other" Animals.

Duty on Imported Swine.—Free October 4, 1913, and after.

Swine Imported.

(Included under "All Other" Animals.)

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TABLE XII.

Horses and Mules by Counties, 1910.

Counties	Mature horses	Yearling colts	Spring colts	Total	Mature mules	Yearling colts	Spring colts	Total
Alameda	9,266	842	536	10,644	223	4	----------	227
Alpine	376	38	12	426	18	----------	----------	18
Amador	2,291	218	176	2,685	212	10	17	239
Butte	6,608	645	402	7,655	1,719	151	91	1,961
Calaveras	3,143	302	203	3,648	25	13	25	63
Colusa	3,992	481	259	4,732	4,607	437	247	5,291
Contra Costa	9,494	1,095	644	11,233	564	63	24	651
Del Norte	382	45	14	441	3	----------	----------	3
El Dorado	2,274	180	90	2,544	93	9	10	112
Fresno	22,063	1,899	1,047	25,009	3,498	298	183	3,979
Glenn	3,319	339	262	3,946	3,033	207	122	3,362
Humboldt	5,851	421	131	6,403	189	----------	----------	189
Imperial	6,277	580	372	7,229	1,583	69	20	1,672
Inyo	4,074	555	403	5,032	249	55	33	337
Kern	8,670	987	530	10,347	1,099	103	46	1,248
Kings	9,417	1,174	882	11,473	855	142	72	1,069
Lake	2,172	216	104	2,492	182	45	36	263
Lassen	7,548	1,406	561	9,515	414	185	103	702
Los Angeles	20,375	1,376	673	22,424	2,459	76	35	2,570
Madera	3,498	334	238	4,070	2,928	154	59	3,141
Marin	2,338	166	54	2,558	11	----------	----------	11
Mariposa	1,896	218	126	2,240	201	46	49	296
Mendocino	5,300	510	184	5,994	298	10	1	309
Merced	10,308	1,453	795	12,556	3,673	198	204	4,075
Modoc	12,247	2,212	976	*15,636	565	441	126	1,132
Mono	1,655	310	132	2,097	73	46	17	136
Monterey	14,172	1,993	1,268	*17,444	546	66	30	642
Napa	5,145	528	237	5,910	345	18	9	372
Nevada	1,830	124	70	*2,074	57	11	----------	68
Orange	9,580	760	225	10,565	2,223	38	7	2,268
Placer	3,762	294	137	4,193	459	13	26	498
Plumas	1,770	206	68	2,044	41	2	----------	43
Riverside	8,969	943	403	10,315	1,303	83	43	1,429
Sacramento	8,770	773	426	9,969	703	30	10	743
San Benito	6,921	955	599	8,475	74	19	3	96
San Bernardino	6,339	372	167	6,878	757	18	3	778
San Diego	9,663	1,130	705	11,498	683	60	23	766

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San Francisco	318		1	319				
San Joaquin	18,256	1,597	1,089	*20,972	3,169	217	144	3,530
San Luis Obispo	12,601	1,686	987	15,274	754	83	40	877
San Mateo	3,940	253	102	4,295	10	2		12
Santa Barbara	10,621	1,442	971	13,034	362	56	25	443
Santa Clara	14,405	899	512	15,816	267	7		274
Santa Cruz	3,914	260	116	4,290	84	4		88
Shasta	4,516	488	213	5,217	224	57	13	294
Sierra	1,199	155	40	1,394	20			20
Siskiyou	7,690	1,037	423	9,150	390	76	37	503
Solano	6,998	695	362	8,050	2,157	84	78	2,319
Sonoma	12,611	733	384	13,728	388	8	2	398
Stanislaus	11,818	1,120	619	*14,357	5,032	236	174	5,442
Sutter	4,869	587	228	5,684	1,922	107	67	2,096
Tehama	5,073	525	278	5,876	1,409	163	103	1,675
Trinity	1,150	117	39	1,306	142	19	7	168
Tulare	18,917	2,006	1,250	*22,200	3,149	288	218	3,655
Tuolumne	2,053	242	196	2,491	76	7	8	91
Ventura	9,955	906	589	*11,480	2,250	66	46	2,362
Yolo	7,127	814	374	8,315	3,501	265	189	3,955
Yuba	2,803	288	153	3,244	726	48	26	800
Totals	402,584	41,927	23,037	*468,886	61,997	4,913	2,851	69,761

*Includes animals, age or sex not specified.

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TABLE XIII.

Cattle by Counties in 1910.

Counties	Dairy cows	Other cows	Yearling heifers	Calves	Yearling steers and bulls	Other steers and bulls	Total
Alameda	9,172	5,827	2,609	4,113	1,107	1,491	*24,319
Alpine	759	661	485	426	400	23	2,754
Amador	2,747	7,985	2,175	3,444	1,970	8,945	22,266
Butte	4,713	8,359	2,605	3,772	2,109	4,660	*26,584
Calaveras	1,824	8,407	2,432	3,355	2,057	2,902	20,977
Colusa	3,128	6,571	2,140	2,606	1,556	2,619	*18,750
Contra Costa	9,469	6,567	3,240	4,479	1,123	1,651	26,529
Del Norte	3,575	620	849	1,306	273	234	6,857
El Dorado	2,823	4,338	1,683	2,154	1,138	912	13,048
Fresno	22,241	42,001	13,117	12,682	15,354	22,230	127,625
Glenn	3,688	3,601	1,410	2,409	1,925	2,051	*16,214
Humboldt	21,572	7,837	5,531	8,334	3,413	6,590	*53,775
Imperial	9,653	2,728	2,560	2,772	1,379	1,817	*22,741
Inyo	2,267	8,970	2,583	2,255	2,445	1,788	20,308
Kern	6,917	38,101	8,441	7,372	6,459	24,271	*118,320
Kings	18,593	21,655	7,281	8,793	3,745	14,908	74,975
Lake	1,487	2,113	821	1,133	574	1,286	7,414
Lassen	2,890	18,444	5,975	4,906	5,456	6,161	43,832
Los Angeles	20,524	8,027	5,561	6,211	1,666	1,106	43,095
Madera	1,592	12,406	2,425	2,975	2,252	3,946	*27,905
Marin	24,803	3,564	2,880	6,509	567	641	*39,266
Mariposa	905	7,477	1,602	2,115	1,683	2,876	*16,671
Mendocino	6,454	9,280	3,054	3,980	2,503	4,883	30,154
Merced	19,678	43,250	14,858	14,625	11,036	34,767	*150,467
Modoc	2,903	18,502	6,937	4,608	6,517	7,449	46,916
Mono	450	2,270	803	666	685	427	5,301
Monterey	14,066	27,626	11,046	13,806	7,502	13,133	*88,889
Napa	6,270	3,945	1,403	2,518	758	937	*15,866
Nevada	2,395	2,950	832	1,069	495	865	8,606
Orange	6,184	4,473	2,124	2,231	1,168	2,040	18,220
Placer	2,421	2,283	602	1,204	428	532	*7,510
Plumas	3,437	1,954	1,561	1,586	1,468	1,395	11,401
Riverside	5,235	4,449	2,493	2,203	1,333	3,755	19,468
Sacramento	11,979	5,484	3,195	5,568	1,529	1,961	*31,188
San Benito	4,828	11,064	4,459	5,864	4,151	8,987	*39,703
San Bernardino	3,043	4,389	1,075	926	481	2,847	12,761
San Diego	10,633	15,815	7,874	8,088	6,490	9,877	58,777
San Francisco	1,645	10	581	174	75	25	2,510
San Joaquin	11,904	6,861	3,636	4,960	1,937	1,998	31,296
San Luis Obispo	24,193	22,903	10,345	15,635	8,948	33,180	*118,704
San Mateo	8,119	2,305	1,848	2,375	369	272	15,288
Santa Barbara	11,690	23,752	6,891	11,524	8,666	24,578	*87,576
Santa Clara	12,181	12,251	4,449	5,443	3,133	7,552	*46,030
Santa Cruz	4,210	1,811	1,113	1,779	438	749	10,100
Shasta	2,923	15,433	3,678	3,308	3,197	5,580	34,119
Sierra	1,563	2,268	850	874	831	1,401	7,787
Siskiyou	7,018	14,781	5,965	4,919	5,359	6,513	*45,079
Solano	9,279	4,257	1,933	3,720	1,187	1,408	21,784
Sonoma	24,961	5,835	4,804	9,517	1,805	1,705	*48,727
Stanislaus	20,678	9,047	5,294	7,252	2,922	3,765	*49,132
Sutter	6,728	3,254	1,939	2,623	1,012	823	*16,604
Tehama	3,462	10,691	2,646	3,520	2,590	2,400	25,309
Trinity	804	5,143	1,415	1,126	1,308	2,089	11,885
Tulare	26,765	29,478	11,911	16,092	8,784	10,429	*104,484
Tuolumne	1,773	8,415	2,040	2,977	1,531	1,223	*18,659
Ventura	2,666	5,887	2,139	2,442	2,095	10,850	*29,929
Yolo	7,197	3,761	2,654	2,649	1,194	1,522	18,977
Yuba	2,255	4,773	1,628	1,827	1,152	1,959	13,594
Totals	467,332	576,909	218,480	267,799	163,728	321,984	2,077,025

*Includes animals, age or sex not specified.

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TABLE XIV.

Sheep, Lambs, and Swine, 1910.

Counties	Rams, ewes and wethers	Spring lambs	Total	Mature hogs	Spring pigs	Total
Alameda	5,680	3,507	9,187	3,640	2,770	6,410
Alpine	9,832	6,808	16,640	309	208	517
Amador	3,919	2,726	6,645	3,623	1,673	5,296
Butte	29,137	15,940	45,077	9,317	5,016	14,333
Calaveras	10,145	5,215	15,360	2,588	1,586	4,174
Colusa	39,801	24,791	64,592	17,646	10,418	28,064
Contra Costa	14,132	5,463	19,595	3,887	3,054	6,941
Del Norte	1,341	500	1,841	1,153	617	1,770
El Dorado	1,763	1,399	3,162	1,428	973	2,401
Fresno	94,757	47,254	142,011	20,134	13,016	33,150
Glenn	70,210	41,153	111,363	12,483	5,827	18,310
Humboldt	62,423	24,650	87,073	7,688	4,945	12,633
Imperial	13,786	9,553	23,339	45,764	24,798	70,562
Inyo	17,240	26,106	43,346	1,795	1,560	3,355
Kern	19,801	10,516	30,317	13,376	7,137	20,513
Kings	40,483	21,891	62,374	22,775	17,858	40,633
Lake	7,436	3,511	10,947	5,301	2,737	8,038
Lassen	42,490	30,225	72,725	3,079	1,955	5,034
Los Angeles	22,261	8,830	31,091	18,418	10,524	28,942
Madera	6,269	3,837	10,106	4,444	2,409	6,853
Marin	1,930	1,025	2,955	8,812	7,287	16,099
Mariposa	877	304	1,181	6,160	2,722	8,882
Mendocino	88,760	41,010	129,770	14,600	7,469	22,069
Merced	28,044	11,724	39,768	19,414	10,121	29,535
Modoc	46,078	30,484	76,562	5,328	3,160	8,488
Mono	40,805	22,241	63,046	179	244	423
Monterey	17,029	11,845	28,874	12,567	7,464	20,031
Napa	5,794	5,084	10,878	5,160	3,184	8,344
Nevada	6,853	4,309	11,162	1,067	749	1,816
Orange	31,802	11,876	43,678	2,265	2,183	4,448
Placer	15,142	9,326	24,468	1,822	1,565	3,387
Plumas	845	314	1,159	665	744	1,409
Riverside	5,589	1,420	7,009	3,892	2,258	6,150
Sacramento	25,828	21,129	46,957	6,421	4,034	10,455
San Benito	10,635	4,511	15,146	5,572	2,560	8,132
San Bernardino	7		7	2,562	1,187	3,749
San Diego	220	69	289	4,261	3,130	7,391
San Francisco	3		3	181	100	281
San Joaquin	14,807	10,012	24,819	13,473	9,981	23,454
San Luis Obispo	54,717	32,236	86,953	11,750	6,118	17,868
San Mateo	767	562	1,329	8,692	3,990	12,682
Santa Barbara	60,205	20,328	80,533	15,113	6,960	22,073
Santa Clara	4,449	5,606	10,055	4,165	3,184	7,349
Santa Cruz	876	703	1,579	2,165	1,509	3,674
Shasta	11,449	5,574	17,023	12,832	5,968	18,800
Sierra	3,005	93	3,098	370	294	664
Siskiyou	18,013	11,909	29,922	6,116	3,396	9,512
Solano	96,921	73,232	170,153	8,836	4,732	13,568
Sonoma	44,095	21,220	65,315	10,995	7,428	18,423
Stanislaus	15,874	7,378	23,252	13,610	9,417	23,027
Sutter	51,135	38,530	89,665	9,121	6,008	15,129
Tehama	185,023	112,713	297,736	10,915	4,025	14,940
Trinity	2,732	1,081	3,813	2,594	1,457	4,051
Tulare	14,014	7,170	21,184	23,942	14,250	38,192
Tuolumne	1,795	671	2,466	2,590	1,303	3,893
Ventura	16,113	15,658	31,771	6,984	3,514	10,498
Yolo	49,807	29,639	79,446	15,483	8,714	24,197
Yuba	40,344	27,318	67,662	3,288	2,251	5,539
Totals	1,525,288	892,189	2,417,477	482,810	283,741	766,551

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TABLE XVI.

Wool Produced by Counties, 1860-1900.

(Compiled from reports of the Census Bureau.)
(Pounds.)

Counties	1860	1870	1880	1890	1900
Alameda	284,735	138,975	205,955	156,065	148,810
Alpine	----------	281,700	90	2,015	6,480
Amador	20,650	73,010	64,808	53,879	30,385
Butte	92,400	351,023	323,483	307,739	551,590
Calaveras	10,335	129,025	161,351	130,761	120,090
Colusa	66,900	1,086,599	661,782	603,822	113,040
Contra Costa	74,108	58,800	27,293	92,415	20,900
Del Norte	----------	3,471	6,462	7,524	3,520
El Dorado	1,130	50,096	73,233	2,251	980
Fresno	----------	191,594	1,477,000	1,802,043	425,862
Glenn	----------	----------	----------	----------	328,020
Humboldt	----------	51,867	647,492	997,649	948,970
Imperial	----------	----------	----------	----------	----------
Inyo	----------	----------	35,382	139,252	264,290
Kern	----------	281,100	666,427	1,163,056	792,700
Kings	----------	72	----------	----------	678,630
Lake	----------	58,046	185,418	139,584	41,940
Lassen	----------	75	92,748	152,232	269,180
Los Angeles	209,869	962,603	1,499,895	544,660	244,380
Madera	----------	----------	----------	----------	279,810
Marin	17,820	6,692	2,080	153	2,947
Mariposa	----------	87,816	163,896	225,895	15,290
Mendocino	18,794	178,493	990,264	1,048,020	1,089,490
Merced	28,500	231,072	631,725	984,505	712,310
Modoc	----------	----------	71,378	86,499	310,725
Mono	----------	7,000	350	15,888	176,520
Monterey	485,167	1,054,310	523,612	267,247	56,100
Napa	31,390	20,789	157,085	156,368	17,810
Nevada	----------	----------	8,002	6,816	15,750
Orange	----------	----------	----------	1,110,112	293,620
Placer	31,330	169,033	233,901	439,723	145,810
Plumas	----------	13,023	23,608	5,833	27,290
Riverside	----------	----------	----------	----------	76,650
Sacramento	67,005	515,213	509,834	254,263	227,900
San Benito	----------	----------	323,285	128,247	59,740
San Bernardino	4,000	71,075	250,338	176,100	38,574
San Diego	5,150	9,250	811,308	130,180	91,040
San Francisco	----------	----------	----------	----------	----------
San Joaquin	36,477	86,700	466,960	111,585	176,160
San Luis Obispo	260,100	903,863	643,853	146,740	77,800
San Mateo	7,535	12,625	2,819	4,040	4,510
Santa Barbara	150,200	996,200	692,415	71,600	509,250
Santa Clara	19,000	179,465	73,024	1,103	15,920
Santa Cruz	24,875	3,100	3,640	3,760	4,410
Shasta	----------	15,820	88,142	68,164	126,900
Sierra	----------	----------	3,625	----------	8,310
Siskiyou	1,150	43,858	135,164	62,024	85,920
Solano	240,937	306,817	290,996	208,385	412,140
Sonoma	78,223	230,394	664,721	547,120	335,010
Stanislaus	38,249	749,263	787,516	176,807	216,990
Sutter	83,062	126,657	152,367	181,489	305,150
Tehama	32,675	445,456	484,763	1,408,818	1,648,750
Trinity	----------	----------	80,115	64,189	62,290
Tulare	16,900	660,645	460,080	1,112,091	355,142
Tuolumne	150	48,525	58,535	39,170	9,930
Ventura	----------	----------	728,932	281,504	10,000
Yolo	146,806	437,048	276,721	280,977	456,870
Yuba	97,487	63,425	194,163	258,155	232,960
Totals	2,683,109	11,391,743	[1]16,798,036	[2]16,358,547	13,680,495

[1]Exclusive of wool obtained from range sheep.
[2]In a summary issued in 1900, the total wool produced is stated at 24,092,954.

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TABLE XV.

Goats, Wool, Mohair, and Goat Hair.

Counties	Number of goats, 1900	Number of goats, 1910	Number of wool fleeces shorn, 1910	Mohair and goat hair fleeces shorn, 1910	Value of wool and mohair produced, 1910
Alameda	66	64	5,783	----------	$4,930
Alpine	----------	10	6,790	----------	9,561
Amador	1,584	1,597	7,253	449	5,882
Butte	1,562	3,215	38,261	1,749	33,991
Calaveras	1,142	3,348	15,677	517	11,551
Colusa	4,289	2,154	73,221	4,009	56,620
Contra Costa	79	17	14,715	----------	10,869
Del Norte	----------	465	1,238	40	2,070
El Dorado	591	3,315	3,808	933	3,504
Fresno	517	4,558	107,802	1,900	109,982
Glenn	4,571	2,813	131,612	5,177	101,749
Humboldt	920	3,747	85,212	2,540	104,430
Imperial	----------	147	12,755	26	17,067
Inyo	8,382	2,846	17,847	505	27,761
Kern	3,364	930	24,177	355	26,540
Kings	870	507	73,393	26	58,836
Lake	10,512	9,018	10,372	6,603	12,922
Lassen	45	586	36,768	2,088	55,154
Los Angeles	13,580	8,238	31,754	230	32,366
Madera	83	278	4,905	60	2,272
Marin	25	147	2,823	----------	2,816
Mariposa	1,026	931	355	154	376
Mendocino	3,627	3,927	149,260	2,315	158,918
Merced	1,878	5,246	46,908	8,400	39,400
Modoc	1,280	549	39,538	1,356	55,583
Mono	651	25	29,160	----------	41,209
Monterey	3,127	3,983	24,884	3,000	26,549
Napa	632	556	9,955	153	7,196
Nevada	989	2,198	10,607	1,043	8,382
Orange	396	423	62,072	----------	51,474
Placer	945	1,542	28,841	177	21,728
Plumas	23	10	593	----------	767
Riverside	384	924	1,536	13	2,600
Sacramento	67	89	41,103	7	35,449
San Benito	139	489	19,457	33	18,974
San Bernardino	126	81	----------	----------	----------
San Diego	2,290	1,147	155	60	195
San Francisco	19	9	3	----------	4
San Joaquin	132	260	20,477	37	14,114
San Luis Obispo	1,502	7,390	64,719	4,758	52,868
San Mateo	363	154	1,013	26	1,162
Santa Barbara	1,118	558	27,787	68	26,308
Santa Clara	5,143	163	4,765	----------	3,596
Santa Cruz	1,505	1,043	799	630	1,444
Shasta	8,792	18,403	17,862	11,606	25,705
Sierra	104	73	2,333	----------	3,940
Siskiyou	3,772	384	14,975	134	23,038
Solano	56	392	157,499	3	161,312
Sonoma	1,544	2,991	75,925	2,330	74,951
Stanislaus	159	217	22,837	50	22,700
Sutter	173	511	149,821	800	110,738
Tehama	10,667	28,473	336,373	36,119	349,689
Trinity	108	845	2,603	44	1,892
Tulare	1,190	2,979	33,150	510	35,218
Tuolumne	1,119	1,609	1,408	177	996
Ventura	1,022	621	21,465	400	14,306
Yolo	322	716	82,602	316	76,497
Yuba	298	502	63,383	208	45,777
Indian reservation	151	----------	----------	----------	----------
Totals	109,021	138,413	2,275,389	102,134	$2,205,928

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TABLE XVII

Counties	Domestic animals on farms and				
	Horses and colts	Cattle	Mules and colts	Asses and burros	Swine, all ages
Alameda	10,644	24,319	227	3	6,410
Alpine	426	2,754	18	14	517
Amador	2,685	22,266	239	23	5,296
Butte	7,655	*26,584	1,961	18	14,333
Calaveras	3,648	20,977	63	27	4,174
Colusa	4,732	*18,750	5,291	65	28,064
Contra Costa	11,233	26,529	651	6	6,941
Del Norte	441	6,857	3		1,770
El Dorado	2,544	13,048	112	17	2,401
Fresno	25,009	127,625	3,979	101	33,150
Glenn	*3,946	*16,214	3,362	29	18,310
Humboldt	6,403	*53,775	189	11	12,633
Imperial	7,229	*22,741	1,672	56	70,562
Inyo	5,032	20,308	337	309	3,355
Kern	*10,347	*118,320	1,248	130	20,513
Kings	11,473	74,975	1,069	23	40,633
Lake	2,492	7,414	263	10	8,038
Lassen	9,515	43,832	702	119	5,034
Los Angeles	22,424	43,095	2,570	84	28,942
Madera	4,070	*27,905	3,141	49	6,853
Marin	2,558	*39,266	11		16,099
Mariposa	2,240	*16,671	296	83	8,882
Mendocino	5,994	30,154	309	29	22,069
Merced	12,556	*150,467	4,075	107	29,535
Modoc	*15,636	46,916	1,132	98	8,488
Mono	2,097	5,301	136	62	423
Monterey	*17,444	*88,889	642	26	20,031
Napa	5,910	*15,866	372	10	8,344
Nevada	*2,074	8,606	68	10	1,816
Orange	10,565	18,220	2,268	25	4,448
Placer	4,193	*7,510	498	66	3,387
Plumas	2,044	11,401	43	5	1,409
Riverside	10,315	19,468	1,429	88	6,150
Sacramento	9,969	*31,188	743	19	10,455
San Benito	8,475	*39,703	96	29	8,132
San Bernardino	6,878	12,761	778	88	3,749
San Diego	11,498	58,777	766	181	7,391
San Francisco	319	2,510			281
San Joaquin	*20,972	31,296	3,530	62	23,454
San Luis Obispo	15,274	*118,704	877	19	17,868
San Mateo	4,295	15,288	12	2	12,682
Santa Barbara	13,034	*87,576	443	24	22,073
Santa Clara	15,816	*46,030	274	11	7,349
Santa Cruz	4,290	10,100	88	6	3,674
Shasta	5,217	34,119	294	23	18,800
Sierra	1,394	7,787	20	4	664
Siskiyou	9,150	*45,079	503	22	9,512
Solano	8,050	21,784	2,319	23	13,568
Sonoma	13,728	*48,727	398	28	18,423
Stanislaus	*14,357	*49,132	5,442	31	23,027
Sutter	5,684	*16,604	2,096	20	15,129
Tehama	5,876	25,309	1,675	23	14,940
Trinity	1,306	11,885	168	8	4,051
Tulare	*22,200	*104,484	3,655	103	38,192
Tuolumne	2,491	*18,659	91	26	3,893
Ventura	*11,480	*29,929	2,362	60	10,498
Yolo	8,315	18,977	3,955	46	24,197
Yuba	3,244	13,594	800	31	5,539
Totals	*468,886	*2,077,025	69,761	2,592	766,551

*Including animals, age or sex not specified.

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SUMMARY.

Ranges, 1910.		Domestic animals in inclosures (not on farms), 1910.				
Sheep—rams, ewes, wethers and lambs	Goats	Cattle	Horses	Mules, asses and burros	Swine	Sheep and goats
9,187	64	2,998	11,439	289	429	3,065
16,640	10	7	16	2	5	22
6,645	1,597	303	492	34	56	
45,077	3,215	686	1,835	16	201	23
15,360	3,348	1,056	746	22	107	32
64,592	2,154	479	726	291	172	131
19,595	17	726	1,378	48	103	92
1,841	465	75	114	1	1	
3,162	3,315	709	473	20	137	
142,011	4,558	1,428	4,525	674	341	58
111,363	2,813	313	694	115	43	5
87,073	3,747	1,363	1,549	20	1,132	165
23,339	147	244	1,278	559	878	435
43,346	2,846	315	902	761	140	16,111
30,317	930	820	3,565	1,482	108	7,597
62,374	507	243	1,005	24	124	5
10,947	9,018	365	395	24	193	34
72,725	586	7,528	25,297	3,425	807	3,025
31,091	8,238	313	743	26	87	18,064
10,106	278	155	436	76	30	1
2,955	147	361	1,227	81	1	26
1,181	931	42	256	75		
129,770	3,927	806	1,280	27	348	4
39,768	5,246	130	520	30	69	11,028
76,562	549	433	811	21	156	
63,016	25	65	170	16		
28,874	3,983	505	1,535	112	53	7
10,878	556	251	899	14	38	91
11,162	2,198	799	946	36	350	89
43,678	423	885	1,923	179	90	649
24,468	1,542	1,076	1,442	162	252	78
1,159	10	162	451	14	79	6
7,009	924	1,163	2,815	249	131	2,833
46,957	89	646	3,917	74	164	80
15,146	489	148	407	4	20	
7	81	1,671	2,977	757	409	1,324
289	1,147	1,210	3,303	434	15	118
3	9	2,280	21,184	320	1,243	2,924
24,819	260	840	2,405	67	150	84
86,953	7,390	1,144	1,301	18	52	18
1,329	154	913	1,424	23	964	114
80,533	558	1,010	2,801	73	40	61
10,055	163	1,105	5,156	66	125	116
1,579	1,043	536	1,543	66	65	79
17,023	18,403	948	1,274	60	486	529
3,098	73	180	312	55	35	42
29,922	384	745	1,393	130	229	28
170,153	392	579	1,108	19	24	31
65,315	2,991	959	2,166	23	164	27
23,252	217	653	1,454	99	157	3
89,665	511	387	386	19	83	1,903
297,736	28,473	273	568	6	35	12
3,813	845	508	277	48	106	
21,184	2,979	831	1,765	137	100	16
2,466	1,609	740	923	108	319	473
31,771	621	576	1,374	93	280	41
79,446	716	371	834	30	195	43
67,662	502	179	386	15	47	2
2,417,477	138,413	46,176	132,521	11,669	12,168	71,744

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POULTRY.

With the exception of the turkey, all the different species of poultry now kept on American farms are of European or Asiatic origin. The fowl, or chicken, is unquestionably of Asiatic origin.

VARIETIES.

The chickens of the United States may be divided into ten classes:

The American class includes the—
- Plymouth Rock.
- Wyandotte.
- Java.
- American Dominique.
- Jersey Blue.

The Asiatic class—
- Brahma.
- Cochin.
- Langshans.

The Mediterranean class—
- Leghorn.
- Minorca.
- Andalusian.
- Spanish.

The Polish class—
- White Crested.
- Black.
- Golden.
- Silver.
- White and Bearded Golden.
- Bearded White.
- Bearded Silver.
- Buff Laced.

The Dutch or Hamburg class—
- Hamburgs.
- Red Caps.
- Campines.

French class—
- Houdans.
- Creve Cœurs.
- La Flèche.

Game and Game Bantam class—
- Black-breasted Red.
- Brown Red.
- Golden and Silver Duckwing.
- Red Pyle.
- White, Black, Birchen, Cornish, and Indian Games.
- Malays.

Bantams other than Game—
- Bebrights.
- Rose Combed.
- Booted.
- White.
- Cochin.
- Japanese.
- Polish.

English class—
- Dorkings.
- Orpingtons.

Miscellaneous class—
- Russian.
- Sumatra.
- Silky.
- Sultan.
- Frizzles.
- Rumples.
- Yokohama.
- Naked Neck.

Classified according to their prominent characteristics, they may be divided into four classes. The egg breeds, which are the greatest egg producers, are the Leghorns, Spanish, Minorcas, and Hamburgs.

The meat breeds, whose chief value is as meat producers: Brahma, Cochin, and Langshan. The general utility fowls furnish fair quantities of eggs and meat. The Plymouth Rock and Wyandotte belong to this class.

The fancy breeds are reared chiefly on account of their appearance; the Polish, Games, Bantams, and some miscellaneous breeds are the chief representatives of this class.

For general purposes the Plymouth Rock and Wyandotte are the most popular of all fowls, the Plymouth Rock in particular being in great favor.

The turkey is an American bird. The wild turkey was once found all along the Atlantic coast, throughout Mexico, Central America, and the great interior plains of North America. The recognized varieties of the domestic turkey are the Bronze, Narragansett, White, Holland, Buff, Slate, and Black.

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DUCKS.

The six leading varieties are the White Pekin, White Aylesbury, Colored Rouen, Black Cayuga, Colored Muscovy, and White Muscovy.

The most prominent breeds of geese are the Toulouse, African, Embden, Chinese, Wild, and Egyptian.

The raising of poultry in California is carried on successfully and on a large scale, the center of this industry being at Petaluma, in Sonoma County.

THE OSTRICH INDUSTRY.

In January, 1910, there were at least 6,100 breeding or feather-producing ostriches in this country, of which Arizona had 80 per cent, California 17 per cent, Arkansas 2 per cent, the small remainder being in Texas and Florida.

The question of the nature of the country most favorable for ostriches is largely affected by the kind of vegetation peculiarly suited to the soil, which in turn is undoubtedly affected by the amount of rainfall. Alfalfa pasture makes an ideal run for the birds, furnishing a large percentage of their food; hence a soil which is or can be made suitable for alfalfa is one of the essentials to success in ostrich farming. A dry, sandy soil, made suitable by drainage and irrigation for raising alfalfa, has proved best adapted to successful ostrich farming. Such a soil is generally peculiarly adapted for raising large crops of alfalfa, and makes an ideal soil for an alfalfa pasture. Under such conditions, it is essential to have some shade.

The demand for ostrich feathers in this country is constantly increasing, while the quantity produced here scarcely affects importations, which are steadily increasing. The demand for information concerning ostriches indicates that the number of individuals who are interested in ostrich farming is rapidly increasing.

The profit to be derived from the business will depend on the management, on the success secured in the raising of the young birds, and on the production of feathers of good quality. The average yearly yield of feathers from an ostrich is 1¼ pounds. Birds produce from 12 to 20 ounces of feathers at each plucking, with an average of 16 ounces. The total weight of an average yield is divided about as follows: "Wings," 48 per cent; "short stuff," 25 per cent; and "tails," 27 per cent. The amount received from the feathers of each bird varies from $20 to $30, depending upon the yield and the price of the product. The average return during the year 1909 was $25.93 per bird. While both ostrich eggs and flesh may be used for human consumption, the amount to be derived from these products is hardly worth considering. As each pair of breeding birds is worth about $800, and chicks 6 months old are valued at $100, any deaths from accidents or any inability to raise chicks greatly lessens the profit to be derived from the business. Allowing for some loss in these ways, and charging a fair interest on the investment, the business can be operated to return a fair profit.

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There were nine ostrich farms, returning 974 ostriches valued at $224,000. There were also reported peafowls valued at $1,431, pheasants valued at $342, and India Jungle fowls valued at $150. The number of farms reporting poultry increased 10,772 since 1900.

Poultry in California—1880-1910.

	1880	1890	1900	1910	Value 1910
Chickens	1,425,991	3,504,251	3,947,200	5,665,964	$3,237,049
Turkeys	----------	287,799	158,356	116,602	258,033
Ducks	----------	157,514	62,293	40,061	28,325
Geese	----------	37,659	28,419	14,195	18,609
Guinea fowls	----------	----------	----------	[1] 2,920	1,993
Pigeons	----------	----------	----------	[2] 246,065	69,254
Ostriches	----------	----------	198	1,082	229,340
All other fowls	184,176	482,972	249,068	378	1,923
Totals	1,610,167	4,470,195	4,196,466	6,087,267	$3,844,526

[1]Included with chickens. [2]Not reported.

Eggs.*

The production of eggs in California in 1909 was 41,022,000 dozen, valued at $10,263,000.

Number of eggs—	Dozens	Value
In 1899	24,443,540	$3,864,679
In 1909	41,022,395	10,262,694
Increase 1889 to 1909	16,578,855	6,398,015
Per cent of increase	67.8	165.6

*The center of the poultry industry in California is at Petaluma, in Sonoma County.

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TABLE XVIII.

Poultry and Eggs—1909-1910.

Counties	Number of poultry raised in 1909	Number of poultry in 1910	Dozens of eggs produced in 1909
Alameda	230,417	240,914	1,391,728
Alpine	2,547	2,159	8,904
Amador	23,628	23,630	142,824
Butte	94,183	74,982	377,598
Calaveras	31,410	23,242	107,387
Colusa	73,034	61,113	249,229
Contra Costa	154,332	118,944	664,951
Del Norte	3,357	3,911	13,767
El Dorado	28,499	24,308	132,910
Fresno	266,221	213,108	1,267,840
Glenn	67,529	50,336	252,286
Humboldt	67,310	54,834	332,115
Imperial	84,062	72,252	264,826
Inyo	50,007	30,132	146,952
Kern	89,520	75,900	394,130
Kings	153,839	102,747	687,052
Lake	37,976	27,435	135,001
Lassen	28,907	19,297	106,897
Los Angeles	586,566	513,965	2,332,397
Madera	28,137	23,246	67,932
Marin	141,629	203,277	1,465,911
Mariposa	19,583	12,217	49,728
Mendocino	64,935	56,807	337,781
Merced	136,305	83,998	454,115
Modoc	38,112	23,789	134,731
Mono	2,559	2,515	4,541
Monterey	123,743	128,325	751,177
Napa	105,428	108,777	662,159
Nevada	35,776	23,482	150,596
Orange	239,536	186,746	1,198,290
Placer	62,151	43,619	235,606
Plumas	15,163	9,649	48,511
Riverside	95,767	84,226	438,099
Sacramento	144,704	116,556	666,906
San Benito	79,550	95,289	696,264
San Bernardino	105,606	91,098	579,685
San Diego	174,778	130,158	921,117
San Francisco	196,020	42,649	110,057
San Joaquin	212,434	175,456	955,501
San Luis Obispo	109,871	119,822	840,405
San Mateo	43,946	47,625	236,642
Santa Barbara	91,159	89,995	407,168
Santa Clara	233,729	209,093	1,166,782
Santa Cruz	79,015	85,705	577,989
Shasta	52,607	35,873	199,858
Sierra	6,993	4,458	24,877
Siskiyou	57,444	43,413	254,107
Solano	66,403	74,683	426,261
Sonoma	1,512,601	1,362,399	9,470,880
Stanislaus	121,677	128,905	648,248
Sutter	101,908	68,861	420,198
Tehama	96,134	59,852	306,452
Trinity	10,800	7,712	31,776
Tulare	204,167	191,965	1,033,110
Tuolumne	22,710	15,989	94,507
Ventura	61,703	60,921	372,111
Yolo	84,010	76,972	347,209
Yuba	44,202	27,936	111,892
Totals	7,096,339	6,087,267	35,907,973

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DAIRY PRODUCTS.

Dairy products in general are somewhat less accurately reported than the principal crops. This is particularly the case as regards the quantity of milk produced. Less than one third of the milk produced was sold as such. Large quantities of milk and cream were sold on the butter fat basis. The butter made on farms in 1909, was valued at $4,086,000.

(From report of Census Bureau.)

Dairy cows and products	Number	Value
Dairy cows on farms April, 1910	467,332 head	
On farms reporting dairy products in 1909	408,812 head	
On farms reporting milk produced in 1909	315,385 head	
Specified dairy products, 1909:		
Milk	154,901,956 gals.	
Butter	15,301,871 lbs.	$4,085,992
Cheese	2,777,873 lbs.	383,494
Milk sold	45,333,432 gals.	7,346,176
Cream sold	3,397,061 gals.	2,861,921
Butter fat sold	19,176,719 lbs.	5,766,394
Butter sold	10,285,583 lbs.	2,763,392
Cheese sold	2,513,815 lbs.	345,414
Total receipts from sales, 1909		$19,083,297
Total value of milk, cream, and butter fat sold, and butter and cheese made		20,443,977

CHEESE AND BUTTER.

The production of cheese and butter as given by counties by the Census Bureau, is that made on farms only, the production by creameries in 1909 was 37,283,450, and full cream cheese 1,567,640 pounds. The decrease from 1904, when it amounted to 3,601,051, is, no doubt, due in part to the increasing practice of separating the cream on the farm, as it is now more profitable to sell the separated cream to the butter factories. The figures issued by the State Dairy Bureau are also given. The cheese produced is, with a few exceptions, only that made by the ordinary Cheddar process. There is a considerable amount of fancy and handmade cheese which has not been reported. That the production of cheese in the State is far below the demand, is proved by the fact that 11,758,680 pounds of cheese, more than double the amount manufactured in this State, is received in the San Francisco market alone. We have the finest land for pasture and conditions favorable for the production of this article. All we need is more good cheese factories and 500 or 1,000 more families to produce the milk.

The amount of the output of cheese reported is much below the actual production in the State, and it is impossible to estimate it, as the owners of factories constantly change from making cheese to the production of cream. It has never been attempted to get a report on other than that made by the ordinary Cheddar process.

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TABLE XIX.

Butter and Cheese Produced on Farms.* 1910.

(Compiled from the returns of the Bureau of the Census.)

(Pounds.)

Counties	1889		1899		1909	
	Butter	Cheese	Butter	Cheese	Butter	Cheese
Alameda	509,614	62,132	526,978	6,716	252,603	675
Alpine	25,075	110	12,495	----	28,613	500
Amador	168,436	4,395	91,584	5,184	68,812	32,517
Butte	178,329	1,143	149,200	40	124,437	----
Calaveras	35,546	550	66,946	1,155	51,841	2,787
Colusa	177,100	100	107,222	----	75,829	272
Contra Costa	315,181	27,802	449,511	21,046	226,976	9,790
Del Norte	455,960	----	300,990	----	461,308	----
El Dorado	216,790	9,125	162,072	9,200	176,354	3,734
Fresno	382,744	11,370	609,676	122,058	514,946	41,210
Glenn	----	----	----	----	86,762	----
Humboldt	1,922,282	9,712	791,850	81	475,773	----
Imperial	----	----	----	----	71,581	1,400
Inyo	55,316	3,373	47,813	185	116,364	5,426
Kern	104,633	88,850	142,392	12,403	73,839	30,051
Kings	----	----	145,704	2,575	78,295	139,000
Lake	119,349	350	121,186	102	92,723	200
Lassen	200,691	5,650	235,258	69,763	279,685	160
Los Angeles	676,575	250,890	509,757	5,243	323,374	1,643
Madera	----	----	----	----	48,459	----
Marin	3,928,009	3,000	3,234,320	4,870	2,289,217	101,743
Mariposa	21,158	695	35,760	196	12,753	----
Mendocino	375,445	22,000	349,840	3,924	355,048	1,357
Merced	153,467	4,420	138,243	98,595	94,602	200,840
Modoc	142,057	10,150	127,930	----	153,175	3,680
Mono	55,093	870	29,832	1,325	30,202	----
Monterey	1,743,162	101,600	712,845	559,923	286,450	59,680
Napa	405,587	43,070	395,494	51,260	381,930	35,826
Nevada	147,042	100	119,236	----	158,271	1,970
Orange	295,146	3,480	220,218	938	333,283	50
Placer	195,507	520	217,508	----	108,876	30,545
Plumas	531,549	15,378	474,599	30,170	237,330	2,500
Riverside	----	----	296,345	208	312,248	650
Sacramento	725,404	230,455	551,020	543,356	164,427	497,064
San Benito	215,545	572,262	223,333	124,351	74,131	137,685
San Bernardino	303,420	1,460	249,439	----	207,745	362
San Diego	408,915	4,472	448,076	7,204	575,662	2,895
San Francisco	7,805	200	104,150	10	144	----
San Joaquin	326,880	1,755	351,312	3,713	341,820	93,630
San Luis Obispo	3,322,918	417,791	1,286,289	135,023	1,369,563	169,350
San Mateo	655,008	521,936	349,421	509,714	91,997	64,751
Santa Barbara	1,055,380	94,235	821,804	57,773	244,632	25,665
Santa Clara	351,248	491,876	484,856	514,563	320,236	577,350
Santa Cruz	425,071	383,165	405,504	372,749	224,392	227,905
Shasta	111,484	6,000	122,610	148	137,723	----
Sierra	123,598	170	114,546	----	135,938	1,318
Siskiyou	312,814	27,000	279,776	35,065	254,999	39,470
Solano	579,422	650	505,128	2,364	381,903	873
Sonoma	2,971,664	234,000	2,093,892	121,695	1,192,532	211,319
Stanislaus	143,231	25,160	153,026	228,363	154,998	2,125
Sutter	160,612	45,300	151,809	249,638	183,527	----
Tehama	125,425	430	160,711	7,599	182,953	----
Trinity	15,509	----	34,433	----	46,277	----
Tulare	354,368	35,738	329,018	1,407	201,880	16,850
Tuolumne	27,716	525	60,150	60	35,522	155
Ventura	226,792	84,840	270,109	624	267,905	----
Yolo	195,879	----	233,345	326,706	88,338	----
Yuba	93,153	11,320	83,695	----	40,673	900
Totals	26,776,704	3,871,575	20,853,360	4,249,588	15,301,871	2,777,873

*This is made on farms, and does not include the amount made in creameries or factories, which is very much larger.

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SUMMARY OF BUTTER AND CHEESE PRODUCED ON FARMS.

(Compiled from the returns of the Bureau of the Census.)

Butter.

Year	Made on farm (pounds)	Made in factories (pounds)	Total (pounds)
1850	705	----------	705
1860	3,095,035	----------	3,095,035
1870	7,969,744	----------	7,969,744
1880	14,084,405	2,074,344	16,158,749
1890	26,776,704	271,767	27,048,471
1900	20,853,360	13,147,137	34,000,497
1910	15,301,871	37,283,450	52,585,321

Cheese.

Year	Made on farm (pounds)	Made in factories (pounds)	Total (pounds)
1850	150	----------	150
1860	1,343,689	----------	1,343,689
1870	3,395,074	----------	3,395,074
1880	2,566,618	1,154,121	3,720,739
1890	3,871,575	1,091,222	4,962,797
1900	4,249,588	2,676,543	6,926,131
1910	2,777,873	1,567,640	4,345,513

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TABLE XX.

Production of Butter and Cheese in California, 1911-1913.

(Compiled from the returns of the State Dairy Bureau. For year ending September 30.)

Counties	Butter, pounds			Cheese, pounds		
	1911	1912	1913	1911	1912	1913
Alameda	233,136	689,774	300,330			
Alpine	38,000	40,000	30,000			
Amador	150,000	145,000	142,208			11,043
Butte	847,645	772,629	769,740			78,840
Calaveras	37,125	80,875	161,666			
Colusa	493,326	490,000	443,089			
Contra Costa	630,025	445,121	502,163			
Del Norte	699,434	740,664	746,637			
El Dorado	200,000	146,548	145,786	100		
Fresno	3,803,644	4,144,404	3,878,289	54,904	129,615	130,600
Glenn	285,105	284,028	590,365			
Humboldt	5,238,382	5,095,014	5,168,990	12,500	199,157	372,000
Imperial	2,885,941	4,110,736	5,398,228	60,000	66,580	110,000
Inyo	174,404	179,742	217,595	7,378	8,175	
Kern	693,413	732,059	566,965			54,700
Kings	3,552,542	3,069,880	2,313,963	66,850	139,375	136,850
Lake	70,770	51,760	54,420	55,250		
Lassen	201,020	225,000	208,000	96,890	115,535	232,808
Los Angeles	482,000	295,018	311,437			
Madera	87,860	163,784	156,606			
Marin	1,835,963	1,709,603	2,119,071	664,500	678,825	554,180
Mariposa						
Mendocino	662,334	549,429	462,061			26,192
Merced	3,102,222	3,351,049	3,910,815	215,000	342,720	227,760
Modoc	30,300	54,400	30,000		6,000	46,936
Mono	9,948	4,200	10,800	2,500	18,800	12,000
Monterey	706,208	664,930	589,467	609,417	697,671	886,183
Napa	498,039	602,756	624,273	18,853	23,000	24,620
Nevada	106,375	90,290	63,554			
Orange	158,851	104,965	75,000			
Placer	205,000	186,500	93,554	20,000		
Plumas	199,299	240,940	243,965			
Riverside	105,933	92,676	104,770			
Sacramento	1,405,054	1,900,417	1,936,560	349,000	266,900	656,260
San Benito	350,595	317,250	249,000	342,770	419,959	382,322
San Bernardino	53,661	89,613	95,866			
San Diego	621,785	593,236	411,888			
San Francisco		10,000	6,600			
San Joaquin	941,430	1,336,344	1,215,644	93,176	84,970	103,327
San Luis Obispo	2,350,820	2,070,619	1,846,828	233,353	254,403	156,380
San Mateo	135,727	224,570	207,829	190,510	142,740	134,878
Santa Barbara	510,527	568,795	269,262			
Santa Clara	131,792	336,839	375,614	475,248	426,864	379,709
Santa Cruz	224,146	182,500	233,136	140,954	173,518	187,150
Shasta	118,000	123,400	90,804			
Sierra	212,719	140,550	140,000	300		
Siskiyou	500,000	506,929	566,309	12,704	10,852	14,921
Solano	1,144,681	1,031,137	1,102,756			
Sonoma	2,106,349	2,881,889	2,478,008	389,000	163,000	158,750
Stanislaus	5,166,515	6,894,225	7,541,900		30,000	82,500
Sutter	579,068	822,046	842,417	464,336	268,370	339,563
Tehama	132,665	144,284	321,165			
Trinity						
Tulare	3,955,583	3,947,284	3,971,217			63,750
Tuolumne						
Ventura	60,295	48,286	52,887			
Yolo	1,096,718	1,104,509	1,034,902	1,147	45,588	14,850
Yuba	106,342	112,390	118,310	63,875	73,000	21,900
Totals	50,380,736	54,940,886	55,542,709	4,640,495	4,785,617	5,600,972

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Summary of Butter, Cheese, and Condensed Milk Production, 1897-1912.

(Compiled from the reports of the State Dairy Bureau.)

Year	Butter, pounds	Cheese, pounds	Condensed milk, cases
1897	28,678,439	6,399,625	
1898	23,691,028	5,148,372	
1899	24,868,084	5,294,938	52,558
1900	28,782,859	4,989,960	66,302
1901	29,730,882	5,681,366	100,140
1902	31,528,762	6,503,441	146,860
1903	34,786,289	7,218,639	126,874
1904	35,636,969	6,133,898	186,905
1905	41,961,047	6,020,672	244,878
1906	44,044,578	6,418,480	113,025
1907	44,599,211	5,928,942	134,907
1908	48,469,585	6,262,194	100,069
1909	43,899,018	4,431,194	83,476
1910	45,989,141	4,648,348	172,916
1911	50,380,736	4,580,495	116,384
1912	54,940,886	4,785,617	172,309
1913	55,542,709	5,600,972	170,976

Receipts of Butter in San Francisco.

Year	Pounds
1901	15,222,951
1902	14,823,048
1903	15,511,214
1904	15,713,992
1905	17,936,782
1906	*
1907	15,384,137
1908	14,610,522
1909	14,328,000
1910	13,934,200
1911	19,033,600
1912	23,548,850
1913	23,905,100

*Not available.

Annual Value of Dairy Products.

1912	Value
Butter, 54,940,886 pounds	$16,905,310
Cheese, 4,785,617 pounds	739,856
Condensed, evaporated, and powdered milk, 9,770,784 pounds	961,662
Casein, 1,065,000 pounds	53,250
Market milk and cream	10,000,000
Calves produced on dairies	2,000,000
Skim milk and butter milk	1,500,000
Total	$32,160,078
1913	
Butter, 55,542,709 pounds	$17,840,318
Cheese, 5,600,972 pounds	899,516
Condensed, evaporated and powdered milk, 8,637,928 pounds	777,468
Casein, 665,000 pounds	33,250
Market milk, cream and ice cream	11,000,000
Calves produced on dairies	2,000,000
Skim milk and butter milk	1,500,000
Total	$34,050,552

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Imports and Exports.

About 40,000,000 pounds of cheese is imported, and 3,000,000 of domestic cheese exported. The duty on imported butter is 2½ cents per pound, and cheese 20 per cent ad valorem on October 4, 1913, and after.

Butter and Cheese Prices in the San Francisco Market.

Month	1911-1912		1912-1913	
	Butter	Cheese	Butter	Cheese
October	$30 68	$14 57	$34 00	$16 92
November	31 39	16 50	33 04	17 93
December	33 03	15 96	33 66	15 89
January	35 38	16 15	34 28	15 44
February	34 60	16 42	35 10	16 63
March	31 42	18 85	35 43	15 47
April	27 71	16 92	29 10	15 88
May	25 29	13 59	26 98	14 22
June	27 60	13 69	27 72	14 79
July	27 82	14 12	28 95	15 54
August	31 31	14 04	32 43	17 16
September	33 08	14 65	34 78	16 82
Average for twelve months	$30 77	$15 46	$32 12	$16 06

Receipts of Butter and Cheese in San Francisco for the Two Years Ending September 30, 1912-1913.

Month	Butter, pounds		Cheese, pounds	
	1911-1912	1912-1913	1911-1912	1912-1913
October	1,946,800	2,035,900	728,080	956,000
November	1,300,350	1,819,900	619,500	700,500
December	1,114,900	1,696,500	496,400	757,800
January	1,236,400	1,767,500	594,500	599,700
February	1,723,400	1,378,100	780,200	482,800
March	1,645,900	2,008,100	552,900	792,000
April	2,183,600	2,694,700	987,800	657,600
May	2,883,600	2,614,000	1,762,200	915,500
June	2,309,400	2,106,200	1,584,600	958,100
July	2,620,400	1,711,100	1,391,400	919,300
August	2,626,400	2,593,600	1,504,200	1,214,000
September	1,957,700	1,479,500	756,900	570,400
Totals	23,548,850	23,905,100	11,758,680	9,523,700

BEES, HONEY, AND WAX.

In the earlier years the parent stock of the honey bee in this country was the common brown or black bee of Germany. In 1860 the Department of Agriculture introduced the Italian bee, about twenty years later the Cyprian, and still later the Carniolan.

Summary of Honey and Wax.

(From census reports.)

Year	Honey, pounds	Wax, pounds
1860	12,276	584
1870	294,326	4,903
1880	574,029	14,672
1890	3,929,889	60,237
1900	3,667,738	115,330
1910	10,264,715	126,445

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The number of farms reporting bees decreased from 6,915 in 1900 to 6,870 in 1910, while the colonies of bees increased from 129,444 to 201,023, or 55.3 per cent, and the value increased from $363,885 to $729,793, or 100.6 per cent.

The average production of honey is 70 pounds to the colony, and the average value 6 cents per pound. The price varies according to color and quality, the extracted honey from 4 to 7½ cents, and comb honey from 10 to 18 cents per pound. In many portions of the State great loss is caused by American foul brood, and European foul brood, commonly called black brood, the percentage of damage having steadily risen from 7 per cent in 1909 to 20 per cent in 1912, and 25 per cent in southern California during the past year.

In 1913 the honey crop was a failure in the southern part of the State, except in Imperial County. Taking the average yield of honey and wax as 70 pounds per colony, the crop averaged 70 to 80 per cent in other parts of the State.

Water-white orange extracted honey brought from 9 to 10 cents a pound, comb honey 17½ to 20 cents, and dark extracted "River Honey" (Sacramento Valley) 3½ to 4 cents a pound.

Years	Pounds	Years	Pounds
1902	5,125,000	1908	5,250,000
1903	8,400,000	1909	10,500,000
1904	1,040,000	1910	4,500,000
1905	9,500,000	1911	5,600,000
1906	5,250,000	1912	4,800,000
1907	6,550,000	1913	3,200,000

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TABLE XXI.

Bees, Beeswax, and Honey by Counties.

(From the census reports.)

Counties	Colonies, 1909	Honey, pounds, 1909	Beeswax, pounds, 1909
Alameda	610	9,848	179
Alpine	49	220	
Amador	170	2,402	100
Butte	1,384	9,702	170
Calaveras	362	8,413	118
Colusa	1,406	67,689	798
Contra Costa	698	15,950	284
Del Norte	78	1,395	
El Dorado	464	8,105	75
Fresno	9,242	616,609	7,261
Glenn	420	10,982	250
Humboldt	1,803	23,481	367
Imperial	4,740	514,125	4,453
Inyo	5,868	312,620	2,131
Kern	4,501	204,920	2,832
Kings	4,690	238,791	3,148
Lake	276	5,105	43
Lassen	298	5,642	5
Los Angeles	25,930	1,289,820	15,501
Madera	375	16,439	370
Marin	20	205	55
Mariposa	34	300	25
Mendocino	441	6,090	34
Merced	4,072	204,098	3,150
Modoc	839	19,796	232
Mono	438	20,355	425
Monterey	3,669	177,279	2,619
Napa	524	8,939	204
Nevada	260	5,452	42
Orange	5,159	325,656	2,764
Placer	657	7,338	80
Plumas	121	2,280	5
Riverside	18,900	902,106	12,915
Sacramento	1,835	55,272	160
San Benito	1,777	68,253	773
San Bernardino	8,073	363,025	5,983
San Diego	30,566	1,559,607	18,589
San Francisco	6		
San Joaquin	3,014	104,645	3,459
San Luis Obispo	3,936	177,342	1,983
San Mateo	289	5,458	193
Santa Barbara	4,072	288,875	4,060
Santa Clara	2,542	77,252	842
Santa Cruz	693	11,032	98
Shasta	689	8,466	185
Sierra	49	2,081	10
Siskiyou	2,775	85,322	324
Solano	256	2,873	
Sonoma	824	7,014	44
Stanislaus	2,554	61,592	1,371
Sutter	2,055	76,812	745
Tehama	786	15,779	115
Trinity	98	1,605	15
Tulare	9,568	290,435	4,743
Tuolumne	363	12,310	65
Ventura	23,714	1,839,986	20,918
Yolo	2,442	106,982	1,125
Yuba	149	545	10
Totals	201,023	10,264,715	126,445

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CALIFORNIA HONEY CROP, AND IMPORTS AND EXPORTS.

(Duty on imported honey, 10 cents per gallon.)

Year	California crop, pounds	Exports of domestic honey, value	Imports, gallons	Value
1885		$224,212	151,786	$67,527
1886		44,735	126,724	45,551
1887	3,200,000	67,154	147,216	47,679
1888	3,500,000	7,579	157,818	46,210
1889	2,200,000	93,888	80,748	26,624
1890	5,000,000	113,101	63,119	27,191
1891	4,000,000	83,325	47,740	20,808
1892	1,240,000	78,048	70,103	31,418
1893	2,680,000	15,115	176,147	79,396
1894	4,275,000	127,282	152,643	56,156
1895	4,000,000	118,873	67,444	22,993
1896	5,350,000	90,969	79,985	30,609
1897	7,878,000	22,368	66,432	27,599
1898	1,820,000	98,504	96,604	38,158
1899	2,822,000	55,900	126,217	51,599
1900	2,208,000	30,191	146,860	70,857
1901	8,112,000	55,574	182,196	83,599
1902	5,125,000	106,112	167,301	56,383
1903	8,400,000	64,220	287,696	115,400
1904	1,040,000	69,317	206,292	69,053
1905	9,500,000	63,367	198,617	76,719
1906	5,250,000	111,945	138,221	50,651
1907	6,500,000	93,690	175,672	70,854
1908	5,250,000	78,102	211,992	98,425
1909	10,500,000	85,578	145,691	60,884
1910	4,500,000	159,401	103,640	52,968
1911	9,500,000	81,649	112,553	62,942
1912	4,800,000	212,652	115,040	62,684
1913	3,200,000			

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PART III.

AGRICULTURE.

(CONTINUED.)

FARMS AND FARM CROPS.

CALIFORNIA FARM CROPS FOR FORTY-SIX YEARS, 1868-1913. PRINCIPAL CROPS BY COUNTIES.

Cereals, Hay and Forage, Beet Sugar, Hops, Cotton, Rice, Tobacco, and Vegetables, Plants, and Nursery Products.

FARM CROPS.

In comparing one year with another it should be borne in mind that acreage is, on the whole, a better index of the general change or tendencies of agriculture than either the quantity or the value of the crops, since variations in quantity may be due largely to temporarily favorable or unfavorable climatic conditions, and variations in the value of the crops are largely affected by changes in prices. The acreage in fruits and nuts can not be given, as the extent of the industry has always been calculated by the number of trees only.

Crops	Acreage 1909	Value
Cereals	1,970,492	$28,039,826
Other grains and seeds	163,776	6,517,453
Hay and forage	2,533,347	42,187,215
Tobacco*	4	479
Cotton (including cotton seed)	324	12,776
Hemp	300	39,000
Hops	8,391	1,731,110
Broom corn	1,023	32,509
Sugar crops	79,604	4,335,358
Sundry minor crops	7	840
Potatoes and sweet potatoes and yams	72,799	5,235,073
Other vegetables	79,163	6,886,885
Flowers, plants, and nursery products	5,816	3,601,301
Small fruits	9,687	1,789,214
Totals	4,924,733	$100,409,039
Seeds		$800,758
Fruits and nuts		48,917,655
Forest products of farm		2,949,732
Miscellaneous		33,829
Totals		$52,701,974

*This is an error; the production in 1909 was almost 9,000 pounds.

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The total value of crops in 1909 was $153,111,000, or 60.6 per cent greater than in 1899, this increase being no doubt due in part to higher prices. The general character of California agriculture is indicated by the fact that somewhat less than one fifth (18.3 per cent) of the total value of crops in 1909 was contributed by the cereals, somewhat less than one third (31.9 per cent) by fruits and nuts, and more than one fourth (27.6 per cent) by hay and forage. The remainder, representing 22.2 per cent of the total, consisted mostly of potatoes and other vegetables, grains and seeds other than cereals, sugar crops, and flowers and plants and nursery products. The combined acreage of the cereals is hardly four fifths that of hay and forage. Barley is the leading cereal, both its acreage and value being almost three fifths those of all cereals combined. Wheat ranks second, with oats, corn and Kaffir corn and Milo maize ranking in the order named in both acreage and value. Of the hay and forage crops, by far the most important is "grains cut green." Dry edible beans, potatoes, and hops are among the principal crops when value is considered.

BEESWAX.

(Duty free.)

Year.	Exported domestic		Imported	
	Pounds	Value	Pounds	Value
1882	124,227	$32,325	----------	$5,312
1883	59,455	17,604	168,879	41,681
1884	51,748	16,042	48,123	9,323
1885	30,877	9,758	91,754	21,211
1886	136,179	36,626	26,546	5,718
1887	90,350	24,997	10,843	2,371
1888	78,070	20,554	51,702	9,411
1889	99,917	23,918	75,951	11,773
1890	171,391	19,727	126,319	20,282
1891	120,548	30,027	379,135	80,485
1892	127,470	31,898	271,068	65,487
1893	77,434	22,048	248,000	62,024
1894	469,463	118,093	318,660	80,024
1895	309,212	90,875	288,001	78,776
1896	222,612	65,844	273,464	75,970
1897	195,048	56,462	174,017	43,339
1898	151,094	41,827	272,097	72,473
1899	152,494	41,916	452,016	109,957
1900	319,379	91,913	213,813	51,526
1901	140,276	39,464	213,773	55,884
1902	125,283	36,541	408,706	115,937
1903	70,811	21,337	488,576	127,220
1904	55,631	16,545	425,168	116,878
1905	85,406	24,966	373,569	101,121
1906	101,726	29,894	587,617	168,014
1907	117,169	36,392	917,088	264,637
1908	90,506	28,659	671,526	194,769
1909	77,547	23,293	764,937	231,559
1910	89,890	27,740	972,145	282,905
1911	101,735	31,404	902,904	270,112
1912	109,478	32,556	1,076,741	328,752

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WOOL.

The following estimates are taken from the annual report of the National Association of Wool Manufacturers, Boston:

	1910	1911	1912	1913
Sheep of shearing age on April 1st	1,900,000	1,700,000	1,700,000	1,600,000
Average weight of fleece, pounds	7	7	7	7
Per cent of shrinkage	66	67	67	67
Wool, washed and unwashed, pounds	13,300,000	11,900,000	11,900,000	11,200,000
Equivalent quantity of scoured wool, pounds	4,522,000	3,927,000	3,927,000	3,696,000
Average value per scoured pound October 1st	$0 46	$0 42	$0 56	$0 45
Total value October 1st	$2,080,120	$1,649,340	$2,199,120	$1,663,200

The comparative prices of California wool at Boston has been as follows on the scoured basis per pound:

Year	Cents		Year	Cents	
	Spring	Fall		Spring	Fall
1898	44	41	1906	70	60
1899	49	44	1907	68	58
1900	49	41	1908	50	40
1901	43½	38½	1909	70	53
1902	50	43	1910	55	45
1903	52	42½	1911	48	40
1904	62	53	1912	54	45
1905	74	62	1913	48	40

CALIFORNIA WOOL PRODUCTION.

(Commercial estimates.) (Duty—Free on and after December, 1913.)

Year	Pounds	Year	Pounds
1851-1853		1883	40,484,690
1854	175,000	1884	37,415,330
1855	300,000	1885	36,561,390
1856	600,000	1886	38,509,160
1857	1,100,000	1887	31,564,231
1858	1,428,000	1888	32,567,972
1859	2,378,000	1889	34,008,770
1860	3,055,325	1890	34,917,320
1861	3,721,998	1891	33,183,475
1862	5,990,300	1892	35,802,930
1863	6,268,480	1893	33,169,375
1864	7,923,670	1894	36,968,400
1865	8,949,931	1895	35,856,690
1866	8,532,047	1896	27,195,550
1867	10,288,600	1897	32,534,230
1868	14,232,657	1898	28,063,240
1869	15,413,970	1899	22,000,000
1870	20,072,660	1900	21,360,000
1871	22,187,188	1901	22,040,500
1872	24,255,468	1902	25,835,700
1873	32,455,169	1903	22,500,000
1874	39,356,781	1904	21,500,000
1875	43,532,223	1905	22,000,000
1876	56,550,970	1906	24,000,000
1877	53,110,742	1907	15,750,000
1878	40,862,061	1908	14,560,000
1879	46,903,360	1909	15,000,000
1880	46,074,154	1910	13,500,000
1881	42,204,769	1911	12,000,000
1882	32,448,349	1912	11,900,000
		1913	11,200,000

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The imports of wool are given under so many classifications of camel, goat, alpaca, etc., unmanufactured and manufactured, that space will not allow the details to be given here.

Summary of California Crops Harvested in 1909.

(Compiled from reports of the Bureau of the Census.)

Crop cereals	Number of farms reporting	Acres	Amount, bushels	Value
Corn	5,728	51,935	1,273,901	$1,077,411
Oats	2,477	192,158	4,143,688	2,637,047
Wheat, total		478,217	6,203,206	6,323,983
Common winter	3,628	413,687	5,168,210	5,311,387
Common spring	1,075	64,070	1,029,907	1,006,819
Durum or macaroni	7	460	5,089	5,777
Emmer and spelt	19	840	19,755	13,758
Barley	7,597	1,195,158	26,441,954	17,184,508
Buckwheat	26	849	14,681	11,569
Rye	193	7,027	70,683	65,846
Kaffir corn and Milo maize	2,521	44,308	938,049	725,704
Total cereals		1,970,492	39,105,917	$28,039,826
Hay and forage—			Tons	
Timothy alone	370	13,725	20,001	$185,579
Timothy and clover mixed	958	46,661	73,183	629,575
Clover alone	703	8,519	20,380	213,289
Alfalfa	19,904	484,134	1,639,707	13,088,530
Millet or Hungarian grasses	101	2,142	2,688	27,483
Other tame or cultivated grasses	2,274	90,414	119,415	1,253,428
Wild, salt or prairie grasses	3,679	253,127	281,033	2,028,494
Grains cut green	39,397	1,604,745	2,019,526	24,056,727
Coarse forage	2,175	25,868	60,611	438,095
Root forage	1,021	4,012	90,586	266,015
Totals	53,760	2,533,347	4,327,130	$42,187,215
Sundry crops—			Bushels	
Potatoes	12,533	67,888	9,824,005	$4,879,449
Sweet potatoes and yams	1,133	5,111	572,814	355,624
Tobacco	12	4	[1]4,502	479
Cotton	18	324	[2]183	11,744
Cotton seed (estimated), 92 tons				1,032
Hops	273	8,391	[1]11,994,953	1,731,110
Hemp	2	300	[1]600,000	39,000
Broom corn	24	1,023	[1]614,250	32,509
Sundry minor crops		7		840
Other grains and seeds—			Bushels	
Dry edible beans	3,054	157,987	3,328,218	$6,295,457
Horse beans	67	150	5,534	5,659
Dry peas	262	2,959	57,468	101,016
Peanuts	42	99	2,991	2,889
Flaxseed	8	240	1,882	3,224
Mustard seed	66	1,964	63,365	100,731
Sorghum cane seed	14	103	1,147	1,997
Sunflower seed	21	257	6,855	6,264
Timothy seed	4		357	1,065
Clover seed	10		310	2,823
Alfalfa seed	347		23,791	200,823
Other tame grass seed	5		1,077	1,323
Flower and garden seeds	109			594,724
Totals		163,776	3,467,885	$6,517,453

[1]Pounds. [2]Bales.

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Size of Cereal Crops.

The acreage sown to wheat and other cereal crops in California has greatly decreased in recent years, the land being devoted to orchards and vineyards, which yield a much higher profit. California, however, has held the first place in the production of barley for a number of years, as far back as the year 1852. The area in barley has been upwards of 1,000,000 acres since 1901, the largest area being in 1910, with 1,195,000 acres. The yield per acre varied from 16.7 bushels in 1900 to 31.0 in 1910, when the production was 46,500,000 bushels, or the largest on record.

Buckwheat has never been grown to any extent in California, therefore, the production being so small, regular records have not been kept. The area under cultivation is but a few hundred acres, and the production from 10,000 to 15,000 bushels.

The production of corn has also fallen off; the acreage was between 100,000 and 161,000 in former years, the highest production being in 1891, when it amounted to upward of 5,570,000 bushels. In 1910 it amounted to only 1,273,000 bushels.

In oats the acreage has increased from 153,000 acres in 1900 to 192,000 in 1910.

Rye has always been a small crop in California, and the area and production have fallen off greatly in recent years, the acreage being 62,925 in 1900 and 7,027 in 1910 and the production 524,451 and 70,683 bushels, respectively.

In wheat, the production has decreased heavily between 1900 and 1910, while potatoes, hay, and hops all show an increase.

Broom Corn.

This crop has never been grown to any extent in California. The production from 1880 to 1910 has been: In 1880, 191,600 pounds; 1890, 815 acres and 611,975 pounds; 1900, 1669 acres, 1,146,000 pounds, and 1910, 1023 acres and 614,250 pounds.

Certain varieties have been cultivated for different purposes in India, China, and parts of Africa for some centuries, but the United States, Italy, France, and Germany are the only countries which produce it solely for broom straw.

Illinois has long been the leading state in production, the amount in California being comparatively small.

Increase or Decrease in Counties, Between 1900-1910.

Of the different counties of the State, more than one half show increases in the acreage of hay and forage. With three exceptions, all the counties reporting decreases in such acreage are located in the northern half of the State. The largest absolute increase is found in San Joaquin County and the largest absolute decrease in Los Angeles County. Although an increase in the acreage of barley is reported for the State as a whole, more than one half of the counties show decreases. As in the case of hay and forage, the decreases are found principally in the northern half of the State. The greatest absolute increase is reported from Riverside County and the greatest absolute decrease from Santa Clara County. More than one half of the total acreage of the State is reported from San Joaquin County.

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In the acreage of wheat only five counties show increases. Two of these, Alpine and Mono, are located near the middle of the eastern boundary line; two, Modoc and Lassen, are in the extreme northeast corner; and the remaining one, Ventura, is on the southwest coast, northwest of Los Angeles. The greatest decrease in the acreage of wheat reported for any county was 272,116 acres for Stanislaus County. Slightly more than one half of the total acreage of dry edible beans is reported from Santa Barbara and Ventura counties on the southwest coast. All the counties reporting increases in the acreage of oats belong to one of four distinct groups, the first consisting of four counties, Modoc, Lassen, Trinity and Shasta, in the northern part of the State; the second, of two counties, Glenn and Sutter, just north of the center; the third, of ten counties in the central and east central parts of the State; and the fourth, of six counties in the extreme southern part of the State. The largest absolute increase is recorded for Stanislaus County and the largest absolute decrease for Sonoma County. Hops are reported from less than one third of the counties, and two of these, Sonoma and Mendocino, situated on the northwest coast, together report more than one half of the total acreage. Nearly one fifth of the corn acreage is reported from Los Angeles County, about one half of the potato acreage from Contra Costa and San Joaquin counties, and about one fourth of the acreage of Kaffir corn and Milo maize is reported from Tulare County.

SUMMARY OF FARM CROPS, 1850-1910.*

(Compiled from the reports of the Bureau of the Census.)

Year	Barley		Buckwheat		Corn	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
1850		9,712				12,236
1860		4,415,426		76,887		510,708
1870		8,783,490		21,928		1,221,222
1880	586,350	12,463,561	1,012	22,307	71,781	1,993,325
1890	815,995	17,548,386	664	10,388	70,308	2,381,270
1900	1,029,647	25,149,335	395	7,835	53,930	1,477,093
1910	1,195,158	26,441,954	849	14,681	51,935	1,273,901

Year	Oats		Rye		Wheat	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
1850						17,328
1860		1,043,006		52,140		5,928,470
1870		1,757,507		26,275		16,676,702
1880	49,947	1,341,271	20,281	181,631	1,832,429	29,017,707
1890	57,569	1,463,068	27,413	243,871	2,840,807	40,869,337
1900	153,734	4,972,356	62,925	524,451	2,683,405	36,534,407
1910	192,158	4,143,688	7,027	70,683	478,217	6,203,206

Year	Potatoes		Hay		Hops	
	Acres	Bushels	Acres	Tons	Acres	Pounds
1850		9,292		2,038		
1860		1,789,463		305,655		80
1870		2,049,227		551,773		625,064
1880		4,550,565	758,024	1,045,119		1,444,077
1890	38,178	3,664,920	1,431,574	2,218,285	3,974	6,547,338
1900	42,098	5,242,596	2,339,601	3,035,266	6,890	10,124,660
1910	67,688	9,824,005	2,533,347	4,327,130	8,391	11,994,953

*When blank, the acreage or production, if any, was not reported.

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High Average Production of Farm Crops in California.

Crop	Average yield per acre in 1912, bushels		Average yield per acre in 1913, bushels		Average price per bushel to producers December 1, 1912, cents		Average price per bushel to producers December 1, 1913, cents	
	United States	California	United States	California	United States	California	United States	California
Barley	29.7	30	23.8	26	50.5	70	53.7	68
Buckwheat	22.9	†	17.2	--------	66.1	--------	75.5	--------
Corn	29.2	37	23.1	33	48.7	85	69.1	88
Oats	37.4	39	29.2	32	31.9	55	39.2	60
Rye	16.8	17.6	16.2	15	66.3	90	63.4	75
Wheat	15.1	17	16.5	14	80.9	93	82.9	95
Potatoes	113.4	130	90.4	119	50.5	65	68.7	70
Sweet potatoes	95.2	156	92.5	170	72.6	94	72.6	100
Hay*	1.47	1.53	1.31	1.50	11.79	13.70	12.43	13.50

*Tons. †Production very small, only 14,681 bushels in 1909.

It is a remarkable fact, and worthy of notice, that both in the average yield and average price of the above crops, the figures for California are considerably above the average for the United States.

THE BEST COUNTIES FOR CERTAIN CROPS.

The six leading counties in the production of cereals, hay and forage, potatoes, sweet potatoes, beans, peas, and other vegetables, and sugar beets are as follows, and may be taken to show the districts in which experience has proved that they are best suited.

Barley.

County	Acreage	County	Acreage
San Joaquin	125,114	Colusa	89,985
Monterey	98,923	Merced	88,145
Madera	90,341	Stanislaus	57,529

Corn.

Los Angeles	9,084	Tulare	2,527
San Diego	4,554	San Joaquin	2,547
Orange	3,054	Ventura	2,409

Oats.

Stanislaus	38,546	San Mateo	16,125
San Joaquin	23,208	Madera	10,569
Merced	19,843	Santa Barbara	9,494

Rye.

Merced	2,108	Lassen	526
San Joaquin	1,843	Modoc	406
Plumas	704	Siskiyou	306

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Wheat.

County	Acreage	County	Acreage
Tulare	66,567	San Joaquin	24,786
Madera	39,468	Monterey	22,924
San Luis Obispo	33,608	Stanislaus	22,068

Kaffir Corn and Milo Maize.

Tulare	10,987	Kings	3,931
Imperial	9,789	San Joaquin	2,968
Stanislaus	4,448	Kern	2,813

Hay and Forage.

Los Angeles	154,048	Fresno	95,265
San Joaquin	104,916	Contra Costa	88,937
Tulare	91,595	Riverside	88,430

Potatoes.

San Joaquin	9,895	Los Angeles	2,799
Sacramento	5,036	Monterey	2,374
Sonoma	3,260	Alameda	1,854

Sweet Potatoes.

Merced	780	San Joaquin	88
Los Angeles	218	Orange	75
Sacramento	117	Sutter	48

Beans.

Ventura	58,744	San Joaquin	13,954
Santa Barbara	22,355	San Luis Obispo	11,169
Orange	21,186	Sacramento	7,801

Peas.

Ventura	756	Alameda	215
Humboldt	517	San Mateo	186
Stanislaus	415	Monterey	154
San Joaquin	362		

All Other Vegetables.

Los Angeles	13,385	Sacramento	6,367
Alameda	7,459	Santa Clara	4,241
San Joaquin	6,728	Orange	3,785

Sugar Beets.

Ventura	14,333	Orange	10,275
Los Angeles	14,191	Monterey	9,900
Santa Barbara	11,320	Yolo	5,714

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Value of Farm Crops by Counties.

The leading counties in the production of various crops classed according to value, are as follows:

Cereals.

(Value of $1,000,000 and upward.)

County	Value	County	Value
San Joaquin	$3,238,000	Solano	$1,292,000
Monterey	1,695,000	Madera	1,220,000
Merced	1,691,000	Yolo	1,032,000
Colusa	1,578,000	Tulare	1,442,000
Stanislaus	1,315,000		

Hay and Forage.

(Value of $1,000,000 and upward.)

Los Angeles	$3,430,000	Stanislaus	$1,424,000
San Joaquin	1,763,000	Tulare	1,362,000
Fresno	1,702,000	Merced	1,355,000
Riverside	1,624,000	Kings	1,171,000
Contra Costa	1,617,000	Sonoma	1,170,000
Santa Clara	1,587,000	Monterey	1,125,000
Alameda	1,547,000	San Diego	1,110,000

Vegetables.

County	Value
San Joaquin	$2,149,000
Los Angeles	1,255,000
Contra Costa	1,125,000

BEET-SUGAR.

The first experiment in beet-sugar in the United States was made in 1830, but until 1879 the industry was a failure.

California is recognized as the principal beet-sugar producing state in the Union. All the coast valleys of California are favorably situated, in respect to temperature, for the production of sugar beets, and the same may be said of certain lands in other parts of the State. The first factory successfully operated in this country was established at Alvarado in 1879. In that year, four factories were in operation, two in California, one in Maine and one in Delaware; but with the exception of the Alvarado factory all were failures. With the building of a factory at Watsonville by Claus Spreckels, and others by the Oxnard Bros., the industry rapidly developed. The bounty paid under the provisions of the tariff act of 1890, amounting to two cents a pound, proved a powerful stimulus to investments in beet-sugar manufacture. Since the repeal of this act, protective tariff has favored the domestic manufacture of sugar. In California there is a larger acreage that is well adapted to the growing of sugar beets than is found in any other state in the Union.

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California Sugar Crops, 1899 and 1909.
(From the Reports of the Census.)
(Sugar beets and sorghum cane.)

Product	Number of farms	Acres	Production		
			Amount	Unit	Value
Sugar beets—					
1899	863	41,242	356,535	tons	$1,550,346
1909*	1,113	78,957	845,191	tons	4,320,532
Sorghum cane—					
Total cane, 1899					3,788
In 1899 cane grown	54	140	1,085	tons	
In 1899 cane sold as such			6	tons	10
In 1899 syrup made			8,671	gallons	3,778
Total cane, 1909					14,826
In 1909 cane grown	48	647	3,021	tons	
In 1909 syrup made	8		4,330	gallons	2,340

*Includes beets and cane used as forage.

The cultivation of the beet greatly improves the land. According to a Leipzig University professor, the following was the average increase in ten years on one estate:

	Yield before beet culture (bushels per acre)	Yield after beet culture (bushels per acre)	Per cent increase because of beet culture
Wheat	24.5	41.3	68.6
Rye	28.4	40.8	43.7
Oats	61.8	75.3	21.8
Barley	23.2	43.5	87.5
Potatoes	218.6	238.0	8.97
Rape	23.2	48.8	110.0

In southern California the acreage in sugar beets in 1912 was between 45,000 and 50,000; and the production of sugar about 1,500,000 bags of 100 pounds each. The quantity of beets raised was 475,000 tons, and the price of beets from $4.50 to $9.90 per ton.*

*For production of sugar beets by counties, see page 104.

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Beet-sugar.

(Duty on beets, 15 per cent ad valorem; sugar-beet seed free.)

Year	California production	Imported raw beet-sugar	
	Pounds	Pounds	Value
1885	1,343,150		
1886	1,688,260		
1887	3,750,000		
1888	4,280,500	61,949,752	$1,594,776
1889	5,170,350	243,473,321	6,957,883
1890	9,250,200	601,119,476	18,348,417
1891	8,175,450	658,994,380	18,232,277
1892	8,624,890	293,134,261	8,081,170
1893	21,801,330	436,333,843	12,846,509
1894	40,204,100	510,350,276	15,793,041
1895	49,232,700	347,376,732	6,993,282
1896	64,510,000	604,686,985	14,048,914
1897	70,740,000	1,865,577,495	33,689,158
1898	36,180,000	140,641,485	2,717,955
1899	64,890,000	723,336,352	15,269,397
1900	60,638,000	701,539,452	14,800,609
1901	137,400,000	908,683,078	20,028,575
1902	147,535,000	255,030,219	4,202,044
1903	131,080,000	87,130,805	1,223,023
1904	118,394,000	2,414,454	50,525
1905	122,500,000	223,944,976	4,797,278
1906	178,000,000	48,548,919	1,032,040
1907	154,800,000	397,745,046	8,203,309
1908	195,000,000	221,036,900	5,401,378
1909	245,000,000	98,625,908	2,521,798
1910	289,493,000	1,148	43
1911	325,076,000	24,669,287	593,037
1912	317,363,000	6,504,260	239,484
1913	338,135,600	182,647,582	$4,169,523

The following table gives a complete list of beet-sugar plants in California, with their names and the location of factories. It also shows the daily slicing capacity, expressed in tons of beets, for each factory.

Beet-sugar Companies and Factories of California.

Manufacturing companies in California	Factory location	Daily slicing capacity, tons of beets
Alameda Sugar Company	Alvarado, Alameda County	800
Los Alamitos Sugar Company	Los Alamitos, Orange County	700
Spreckels Sugar Company	Spreckels, Monterey County	3,000
Union Sugar Company	Betteravia, Santa Barbara Co.	600
American Beet Sugar Company	Chino, San Bernardino County	900
	Oxnard, Ventura County	2,000
The Southwestern Sugar Company	Corcoran, Kings County	600
Sacramento Valley Sugar Company	Hamilton City, Glenn County	700
Holly Sugar Company	Huntington Beach, Orange Co.	750
Anaheim Sugar Company	Anaheim, Orange County	600
Santa Ana Co-operative Sugar Company	Santa Ana, Orange County	600
San Joaquin Valley Sugar Company	Santa Ana, Orange County	*
Southern California Sugar Company	Visalia, Tulare County	400
Total		10,850

*Did not run.

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In 1912 there were eleven factories working, which used 1,004,328 tons of beets, producing 158,904 tons of sugar, the percentage of sucrose being 18.95 per cent, or higher than in any other state. The acreage harvested amounted to 99,545. In the Sacramento Valley the acreage was 7,800, from which 74,500 tons were harvested. The lowest price paid for beets in 1912 was $4.00 per ton and the highest $5.80. In 1911 the prices were $4.57 to $6.05. The reason for the lower price in 1912 was due to the rains of September and October, which affected the sugar contents of the beets.

The average sugar percentage was not as great in 1913 as in previous year, nor were the beets of as good quality.

Sugar Beets and Beet-sugar Produced in California, 1901-1912.

Year	Number factories in operation	Sugar beets			Sugar made (chiefly refined)	
		Area harvested, acres	Beets used for sugar, short tons	Average per acre, short tons	Pounds	Short tons
1904	--------	32,801	395,452	12.06	93,311,900	46,656
1905	--------	51,857	514,391	9.92	147,786,900	73,893
1906	8	60,141	671,571	11.17	185,480,000	92,740
1907	8	47,387	484,816	10.23	146,045,500	73,023
1908	8	62,302	647,085	10.39	179,780,000	89,890
1909	10	83,000	882,084	10.63	254,544,000	127,272
1910	8	90,500	923,100	10.20	279,780,000	139,890
1911	10	99,545	1,037,283	10.42	322,600,000	161,300
1912	11	111,416	1,004,328	9.01	317,808,000	158,904

The beet-sugar industry in the United States is not localized, as is the cane-sugar industry. Beets are grown and beet-sugar is made in localities more or less scattered, from Ohio to California, including in the north Minnesota and Montana and in the south Arizona. About two thirds of the beet-sugar made in the United States comes from the factories of California, Colorado, and Michigan. In 1912, the year of highest production up to date, 73 factories were in operation, with an average output of 9,500 short tons per factory for the campaign. The year before, the 66 factories then in operation made an average of about 9,000 tons each. The beet-sugar campaign averages from 80 to 90 days a year.

Area and Production of Sugar Beets, and Sugar by States, 1912-1913.

State	Beets used				Sugar made	
	Area		Production			
	1912, acres	1913 (preliminary), acres	1912, short tons	1913 (preliminary), short tons	1912-13, short tons	1913-14 (preliminary), short tons
California	111,416	120,000	1,004,328	1,094,000	158,904	160,000
Colorado	144,999	157,000	1,641,861	1,800,000	216,010	215,000
Idaho	19,952	22,000	170,619	244,000	24,761	32,000
Michigan	124,241	113,000	838,784	937,000	95,049	119,000
Ohio	27,062	27,000	263,005	234,000	28,503	27,000
Utah	37,000	40,000	445,130	507,000	59,571	57,000
Other states	90,630	98,000	860,650	1,018,000	109,758	117,000
United States	555,300	577,000	5,224,377	5,834,000	692,556	727,000

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Beet-sugar Produced in the United States, 1852-1913.

Period	Beet-sugar pounds	Period	Beet-sugar pounds	Period	Beet-sugar pounds
1852-60		1895-96	65,452,800	1904-05	484,226,430
1861-70	896,000	1896-97	84,080,640	1905-06	625,841,228
1871-80	851,200	1897-98	90,491,520	1906-07	967,224,000
1881-90	2,353,568	1898-99	72,735,040	1907-08	927,256,430
1890-91	7,748,160	1899-00	163,458,075	1908-09	851,768,000
1891-92	11,997,440	1900-01	172,164,160	1909-10	1,024,938,000
1892-93	26,920,320	1901-02	369,211,733	1910-11	1,020,344,000
1893-94	44,688,000	1902-03	436,811,685	1911-12	1,199,000,000
1894-95	45,006,080	1903-04	481,209,087	1912-13	

There was a great increase in the consumption of sugar in the United States between 1881 and 1912. The average consumption per capita in the latter part of this period was nearly double that of the early eighties. The average annual consumption, which between 1881 and 1885 was 46 pounds per capita, was more than 78 pounds in 1906–1910.

Sorghum Syrup.

Sorghum was first introduced into the United States in 1853; in 1857, about 16 varieties of African sorghum were introduced and grown in Georgia and South Carolina. It was at first thought that the crop would supply a large part of the nation's sugar, on account of its wider distribution than sugar cane or sugar beets, its large yield per acre, and care and cultivation. It was found, however, to contain a large percentage of gummy material which prevented crystallization.

Tennessee, Missouri, and Kentucky are the largest producers.

The following table shows the production in California from 1860 to 1910:

Year.	Gallons
1860	552
1870	333
1880	2,459
1890	1,670
1900	8,671
1910	4,330

HOPS.

The United States is one of the three leading hop-producing countries of the world, the others being the United Kingdom and Germany. The leading states in the production of hops are California, Oregon, Washington, and New York.

As in other crops, there are many varieties; the seedless variety is grown most in Austria and Germany, while in the United States and England the seed hop is cultivated almost exclusively.

The total area devoted to the production of hops in California in 1909 was 8,391 acres, producing about 11,994,953 pounds of hops, valued at $1,731,110. The climatic conditions and soil of California are more perfectly adapted to this crop than any other state in the Union, and its average production per acre is greater. The average production per acre in other hop-producing countries of the world has been estimated as follows: England, 905 pounds; Germany, 510 pounds; in the United States, 885 pounds, and in California, 1,469 pounds.

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The cultivation of hops in California has increased rapidly, as shown by the following figures:

California Hop Crop.

(From the Bureau of the Census.)

Year	Acres	Pounds
1860		80
1870		625,064
1880	1,119	1,444,077
1890	3,974	6,547,338
1900	6,890	10,124,660
1910	8,391	11,994,953

NOTE.—The acreage was not reported prior to 1880.

The highest and lowest prices per pound paid to growers during the last six years have been as follows:

Year	Highest, cents	Lowest, cents
1908	14	7
1909	25	12
1910	30	15
1911	45	25
1912	22	13
1913	26	13

Hops.

(Duty, 16 cents per pound.)

Year	California crop		Exports		Imports	
	Bales*	Pounds	Pounds	Value	Pounds	Value
1885	26,000	4,810,000	7,055,289	$1,391,854	1,642,086	$433,706
1886	28,000	5,180,000	13,665,661	1,714,488	2,672,762	444,989
1887	32,600	5,936,000	260,721	54,970	18,538,049	3,404,669
1888	35,000	6,860,000	6,793,818	1,203,060	5,585,083	1,017,495
1889	35,400	6,938,000	12,589,262	2,823,832	4,176,158	1,155,472
1890	28,400	5,566,000	7,540,854	1,110,571	6,539,516	1,053,616
1891	36,150	7,085,400	8,736,080	2,327,474	4,019,603	1,797,406
1892	39,800	7,800,000	12,604,686	2,420,502	2,506,224	883,701
1893	51,400	10,074,400	11,367,030	2,695,867	2,691,244	1,085,407
1894	67,500	13,230,000	17,472,975	3,844,232	828,022	484,415
1895	52,000	10,192,000	17,523,388	1,872,597	3,133,664	599,744
1896	35,000	6,860,000	16,765,254	1,478,919	2,772,045	600,419
1897	45,000	8,820,000	11,426,241	1,304,183	3,017,821	629,987
1898	44,500	8,722,000	17,161,669	2,642,779	2,375,922	648,155
1899	59,000	11,564,000	21,145,512	3,626,144	1,319,319	591,755
1900	36,000	7,056,000	12,639,474	1,707,660	2,589,725	713,701
1901	48,000	9,360,000	14,963,676	2,466,515	2,606,708	851,008
1902	53,000	10,176,000	10,715,151	1,550,657	2,805,293	833,702
1903	56,000	10,752,000	7,794,705	1,909,951	6,012,510	1,808,491
1904	63,000	12,222,000	10,985,988	2,116,180	21,758,163	1,374,327
1905	67,500	13,095,000	14,858,612	4,480,666	4,339,379	1,980,804
1906	80,000	15,520,000	13,026,904	3,125,843	10,113,989	2,326,982
1907	82,000	16,072,000	16,809,534	3,531,972	6,211,983	1,974,900
1908	68,000	13,260,000	22,920,480	2,963,167	8,493,265	1,989,261
1909	69,000	12,765,000	10,446,884	1,271,629	7,386,574	1,337,099
1910	71,000	13,135,000	10,589,254	2,062,140	3,200,560	1,499,354
1911	87,000	16,095,000	13,104,774	2,130,972	8,557,531	2,706,600
1912	117,000	21,645,000	12,190,663	4,648,505	2,991,125	2,231,348
1913	118,500	21,922,500	17,591,195	4,764,713	8,494,144	2,852,865

*A bale averages from 185 to 190 pounds net, the variation depending upon the quality and the compression of the hops.

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The importation of hops is small, nearly all from Germany and Austria-Hungary. The exports of domestic hops in 1913 amounted to 17,591,195 pounds, value $4,764,713, of which the bulk, or 15,409,093 pounds, was taken by the United Kingdom.

CALIFORNIA COTTON.

Cotton is one of the most important crops grown in the United States, but it is only in the last three or four years that it became a recognized crop in California.

The first cotton grown in the United States was in Virginia, about 1721. The production of cotton, which was 4,000 bales of 500 pounds net in 1790, had increased in 1905 to 10,339,807 bales.

The acreage in the United States in 1912 was 34,766,000, the four leading states being: Texas, 11,390,000 acres; Georgia, 5,390,000 acres; Alabama and Mississippi nearly equal, with upward of 3,000,000 acres each.

At the fair held by the State Agricultural Society in 1863, Jackson & Johnson of Sacramento County exhibited samples of cotton from a field of 25 acres. The only county growing cotton on a commercial scale within the last three years is Imperial County.

The first cotton produced in Imperial County was in 1909–1910, and amounted to 350 bales. In 1910, the acreage reported was 10,000, and 12,000 acres in 1911. In 1910–1911 the production was 4,000 bales of 500 pounds and 5,258,000 pounds of lint. In 1911–1912 the production was 9,420 bales and 4,302,000 pounds of lint. In the season of 1912–1913 the acreage was 8,450 and the production 7,250 bales. The yield per acre was 390 pounds in 1911 and 430 pounds in 1912. This is the highest average in the United States, the next being Missouri in 1911 with 360 pounds, and North Carolina in 1912 with 271 pounds.

Ever since Imperial Valley was first settled, ten years ago, cotton has been raised experimentally. These experiments had been carried on with all varieties of seed, Upland, Long Staple, Bottom Land, and Egyptian. Finally, in 1909, the farmers incorporated and formed a ginning company. The results were most profitable to the planters, and the fact that cotton could be raised profitably in Imperial Valley was proven without a shadow of a doubt.

Durango cotton, which is long-staple Upland variety, was first grown in the Imperial Valley in 1911 by Mr. W. E. Wilsie on 3 acres of land near El Centro. In 1912 about 200 acres were planted by six growers from seed grown by Mr. Wilsie.

The highest price paid for cotton during 1911–1912 was 11 cents and the lowest 8.20 cents. In 1910–1911 the highest was 14 cents and the lowest 11.50 cents. These prices are for "middling" cotton; the price for higher and lower grades varied according to grade. The acreage in 1913 was 22,000, and the yield 21,500 bales of 500 pounds each, very close to a bale per acre, the value amounting to one and a half million dollars. The staple cotton (or Durango) crop, amounted to 6,000 bales. The price for short cotton ranged from $12.00 to $13.70 per hundredweight; Durango or staple, $15 to $16.50.

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In addition to this, the value of cotton seed, and cotton seed products, amounted to about $250,000. Ginning is done at ten gins, each with a capacity of forty bales per day, located at Brawley, Imperial, El Centro, Heber, Calexico, and other places, and more will be built this year.

There is a cotton mill at El Centro, with a capacity of 75 tons per diem, built at a cost of $100,000.

The effort of some of the farmers to grow Long Staple cotton has not met with much success, however, and most of those growers who favored this Long Staple variety have gone back to the Short Staple cotton. The two reasons for the failure in this particular variety are: first, the fact that it is almost impossible to get a good variety Long Staple cotton when grown in a locality where there is a great deal of Short Staple cotton, as the plants interpollenize; and, secondly, that the market for Long Staple cotton is not nearly as steady as the market for Short Staple.

The great amount of low-grade cotton this season in the southern states, and the scarcity of the better grades, has greatly benefited Imperial Valley, where practically all the cotton is of a uniformly fine quality. The acreage for 1914 is estimated at between 40,000 and 60,000, of which 25,000 will be in Durango cotton.

SILK.

The production of silk in California is named in the Census of 1870, when 3,587 pounds of silk cocoons were reported. In 1880 a State Silk Culture Association was organized, but later became dormant until revived in 1908 as the Ladies' Silk Culture Society of California. The society has established a farm at Rutherford, Napa County, where they have nearly 800 white and red mulberry trees, and distribute cuttings free to all parts of the State. A ten thousand dollar building has been constructed for hatching worms, and other purposes.

Silk-worm eggs have been secured from France and Italy, and in the course of time it is hoped that the work will develop into an important industry. At the San Francisco Land Show, in October, 1913, a gold medal and the blue ribbon were awarded for raw silk produced at the Rutherford farm.

RICE.

If its importance as a food product is to be measured by the number of persons who consume it, rice must, without a doubt, be considered the greatest cereal, as it is more widely and generally used as a food material than any other. It was introduced for cultivation into the United States in 1647, when Sir Wm. Berkeley, then Governor of Virginia, received half a bushel of the grain from England. Up to 1860, the Carolinas and Georgia produced the entire commercial crop. Half a century ago experiments were made in the cultivation of rice in California, but they were not successful. In 1860, small quantities were raised in Alameda, Tehama, San Mateo, Santa Cruz, and Sonoma, but the total amount produced was only 2,140 pounds. The acreage in the United States in 1913 was 827,100, the leading states being: Louisiana, 405,500 acres, and Texas, 303,000.

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Experiments in California have been conducted on three types of soil, covering a large area in the Sacramento Valley. Three years' results indicate the possibility of growing rice in this region on a commercial scale, the important thing now being to determine the varieties best adapted to the region. In the spring of 1909 the office of Grain Investigations of the Bureau of Plant Industry inaugurated tests to determine the adaptability of rice to the climate and soil of the Sacramento Valley on the east side of Butte Creek, 9 miles west of Biggs. Some of these tests yielded as much as 122, 131, and 154 bushels to the acre. In the Sacramento Valley rice requires a longer time to mature and produces smaller plants than when grown on the plains of the Gulf coast, but it exhibits a greater capacity for tilling, with resultant larger yields.

The results from a two-year test of 300 varieties of rice on black adobe soil near Biggs, Cal., indicate the possibility of rice culture in the Sacramento Valley. The successful introduction of this crop is dependent upon an abundant supply of water, which must always be available during the growing season. The soil area adapted to rice in this valley is sufficiently large to produce many times the 55,000,000 pounds of cleaned rice which are consumed each year on the Pacific coast. How much of this area has sufficient available water for proper irrigation is uncertain, though for a good portion of it there is apparently an abundant supply. Increase in the rice acreage should therefore be made with care.*

The first crop was produced four years ago on the Balfour-Guthrie ranch, west of Biggs, Butte County, by Wm. Grant, the manager. Each year since then more acreage has been devoted to it, and it has been found that it can be successfully grown and made to produce more per acre than any other grain.

Its culture has opened up a new industry for lands which have hitherto been deemed unfit for anything but wheat, on account of the adobe conditions of the soil. The time of harvest varies, according to the variety, from August to November. The yield per acre varies a great deal according to the variety sown; in 1910, from 2,000 pounds to 6,700 pounds per acre were produced, and but for blackbirds the yield would have been heavier.

In 1911, from four acres of the Jap variety, 361 sacks, or over 90 sacks to the acre, was harvested; each sack contained 110 pounds. This rice was sold for seed, netting a return of over $300 per acre. In 1911 about 180,000 pounds were grown on 55 acres of black adobe land in Butte County. There is no question that rice growing will be profitable on the shallower clay soils of the State, where the water supply is sufficient for the requirements of the crop.

In 1912 the area planted in the Biggs section was increased to 900 acres, which produced 2,500,000 pounds of rice, which brought 2 cents a pound. In 1913 there were 6,250 acres of rice in California, all but about 150 acres in the Sacramento Valley. The results obtained were very good, the yield ranging from 2,500 to 5,000 pounds per acre, averaging about 3,200. About 1,000 acres were late and could not be threshed before the rains started last fall. Most of this rice stood in the

*Report on Rice Growing, Circular No. 97, U. S. Department of Agriculture.

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shock all winter, and was to some extent damaged. The price of rice last fall was between $1.75 and $2.25 per cwt, the average being about $2.00. The acreage in 1914 will not be nearly as large as at first estimated, owing to the wet winter, which made it impossible for the canal companies to extend their laterals, and the farmers to prepare their land for seeding, and therefore the area will probably not exceed 10,000 acres.

Rice was grown successfully last year near Pond, in the northern part of Kern County, on heavily laden alkali land which had hitherto been regarded as practically worthless. From 15 acres 349 sacks, weighing from 100 to 110 pounds, were produced, valued at 3 cents per pound.

TOBACCO.

The first tobacco cultivated in the United States was at Jamestown, Va., in 1612. In those early days it was the medium of exchange and standard of value. The Virginians who settled Kentucky and Tennessee grew tobacco as early as 1810; since then the cultivation has spread enormously, twenty-four states now producing tobacco, some with only a few hundred acres, Kentucky with 370,000. In 1913, the total acreage in the United States was 1,216,100, producing 953,734,000 pounds. In 1870 California appears to have first experimented with tobacco, Monterey raising 59,120 pounds, Colusa 1,000 pounds, and Fresno 40 pounds. Ten counties produced only 63,809 pounds. In 1880 San Benito headed the list with 64 acres and 59,100 pounds, Los Angeles 10 acres with 8,200 pounds, and nine other counties, the total amounting to 84 acres, with 73,317 pounds. In 1890 there were only 27 acres, which produced 12,907 pounds, San Benito again taking the lead, with 10,000 pounds.

The growing of tobacco in California during the last two years has developed considerably, and is now fully established as one of the industries of the State, and (dependent upon the farmer) the crop may become one of the largest in the San Joaquin Valley. There appears to be no reason why this section should not eventually produce tobacco on a scale comparative to other states and on a basis of at least corresponding profits.

For over four years extensive and exhaustive experiments in the production of tobacco from Turkish seed have been carried on at the Exeter Tobacco Ranch in Tulare County. There have been a number of types of tobacco experimented with, but the types that have been attended with the greatest success are such as are suitable for cigarette manufacture. The tobacco raised during the last four years has been produced about equally by Fresno and Tulare counties, the total quantity being 7,500 pounds in 1909; 15,000 in 1910; 45,000 in 1911, and 150,000 in 1912. The 1912 crop sold at from 30 cents to 60 cents per pound; most of it averaged 47½ cents. Some tobacco is also from Los Angeles County and the southern part of the State.

In 1913 the crop of leaf tobacco amounted to about 175,000 pounds, some of which it is stated was purchased by the eastern market. According to a leading authority, the crop was not as good as in former years, owing to the farmers planting too large an acreage and not being familiar with the culture of tobacco.

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VEGETABLES.

The potato is the most important vegetable raised; the acreage in 1912 was 78,000, and the production 10,140,000 bushels, valued at $6,591,000, an average of 130 bushels to the acre.

Next to the Irish potato, the sweet potato is the most extensively grown vegetable in the United States. In California it is not cultivated on a large scale. In 1909, the acreage amounted to 5,111, with a production of 572,814 bushels.†

Beans and Peas Produced, 1850-1910.*

(From the Bureau of the Census.)

Year	Beans, bushels	Peas, bushels
1850	2,292	----------
1860	165,574	----------
1870	380,010	----------
1880	378,971	40,806
1890	713,480	32,364
1900	658,515	57,299
1910	3,323,608	57,468

The acreage in beans in 1910 was 157,825, producing beans of the value of $6,292,955; the acreage in dry peas was 2,959, valued at $101,016.

Lima Beans.

Lima beans are only grown in any quantity in five counties, and have come into great favor in recent years. They were first cultivated in Carpinteria Valley about forty years ago, and after 1884 the growing extended. The bulk of the crop is raised in Santa Barbara and Ventura counties, Orange, Los Angeles, and San Diego counties being next in order. The average yield is 14 sacks of 80 pounds, or 1,120 pounds to the acre, but in the best sections 25 sacks, or 2,000 pounds, to the acre are considered good.

Beans have become one of the most important vegetable crops in the State.

California Beans, 1907-1913.

(Sacks.)

Variety	1908	1909	1910	1911	1912	1913
Limas	1,000,000	1,050,000	1,175,000	1,300,000	1,200,000	1,050,000
Blackeyes	120,000	80,000	100,000	225,000	204,000	80,000
Large whites	350,000	300,000	150,000	75,000	63,000	115,000
Small whites	100,000	225,000	250,000	215,000	215,000	40,000
Bayos	110,000	100,000	75,000	150,000	65,000	60,000
Pinks	400,000	325,000	250,000	710,000	298,000	250,000
Various	125,000	100,000	100,000	150,000	118,000	120,000
Totals	2,205,000	2,180,000	2,100,000	2,825,000	2,163,000	1,715,000

†For the production of potatoes and sweet potatoes by counties, see page 101.

*Beans and peas were reported as one product in 1850, 1860, and 1870.

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Beans.*

(Duty—beans, 25 cents per bushel of 60 pounds; dried peas, 10 cents per bushel; split peas, 20 cents per bushel.)

Year	California bean crop, bags	Exported†		Imported	
		Bushels	Value	Bushels	Value
1900	947,200	617,355	$983,401	967,031	$1,049,443
1901	1,221,000	468,670	862,088	1,099,640	1,306,405
1902	975,200	324,481	636,345	881,966	1,152,177
1903	1,160,000	232,841	530,875	1,088,665	1,420,334
1904	1,337,000	248,805	546,479	978,187	1,223,309
1905	1,921,400	330,321	730,922	472,572	628,775
1906	1,779,000	447,474	960,710	458,041	667,214
1907	1,060,000	435,490	932,264	406,679	656,898
1908	1,929,000	306,939	708,201	1,657,401	2,406,935
1909	2,340,000	298,209	702,819	3,355,405	4,926,199
1910	1,950,000	365,721	973,231	1,015,157	1,621,207
1911	2,825,000	288,638	814,663	1,037,371	1,733,697
1912	2,013,000	341,268	1,011,466	1,004,930	1,857,220
1913					

Celery.

Celery is an important crop and is grown on a large scale in Orange County, but owing to the fact that the blight has damaged the celery to some extent in this county, and that a large quantity is being raised near El Monte, in Los Angeles County, and also a large acreage near Stockton, in San Joaquin County, the growers are turning to lima beans and sugar beets, which are more certain and less expensive to raise.

According to the figures of the California Vegetable Union, Los Angeles County leads in the production of cauliflower, cabbage, lettuce, tomatoes and mixed vegetables; San Joaquin in potatoes and onions; San Mateo in artichokes, and Sacramento in asparagus.

The annual average shipments are approximately as follows:

Vegetables	Number of cars	Average price paid to growers
Artichokes	150	25 cents to $1.00 per dozen.
Asparagus	350	3 cents to 4 cents per pound.
Celery	2,500	15 cents to 40 cents per dozen.
Cauliflower	1,000	15 cents to 60 cents per dozen.
Cabbage	1,000	$8.00 to $40.00 per ton.
Potatoes	10,000	50 cents to $2.00 per cwt.
Lettuce	300	8 cents to 25 cents per dozen.
Tomatoes	300	$15.00 to $30.00 per ton.
Onions	2,000	50 cents to $2.00 per cwt.
Mixed vegetables	1,000	

CANNED VEGETABLES.

California ranks first among the states in the production of canned asparagus, and sixth in that of canned tomatoes. The case which is used as the unit of measure consists of 24 standard-size cans No. 2 (also called 2-pound cans) for beans, peas, and No. 3 (also called 3-pound cans) for all other vegetables. Where the output has been reported in other forms by the canneries, the quantities have been reduced to standard cases.

†In the exports dried peas are included in the total with beans. The imports of dried peas in 1913 was $1,134,346; value, $1,835,775.

*For the production of dried beans and peas by counties, see page 102.

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The value of the vegetables canned increased throughout during the decade of 1899–1909; the rate of increase from 1904 to 1909 being much higher than that during the preceding five-year period. The value of canned asparagus formed over half of the value of all canned vegetables in 1909.

(Compiled from the Reports of the Census Bureau.)

Product	1899		1904		1909	
	Cases	Value	Cases	Value	Cases	Value
Asparagus					198,123	$1,794,346
Beans	34,209	$56,797	65,641	$133,494	47,525	87,059
Peas	72,760	145,987	68,142	144,033	123,349	250,624
Pumpkins	1,033	1,860	18,852	30,156	11,694	15,165
Tomatoes	794,566	2,068,997	541,776	845,805	545,131	1,120,632
All other	148	396	286,172	1,213,173	65,812	202,795
Totals		$2,274,037		$2,366,661		$3,470,621

Duty on Imported Preserved Vegetables.

All kinds 25 per cent ad valorem.

Canned Vegetables.

Year	California pack, cases	Exported value	Year	California pack, cases	Exported value
1900	803,617	$603,288	1907	1,941,755	$598,628
1901	1,076,058	528,914	1908	1,501,885	621,987
1902	1,151,268	560,612	1909	1,242,720	728,111
1903	1,343,574	597,759	1910	2,250,645	782,973
1904	961,783	719,580	1911	2,293,000	1,061,259
1905	1,192,455	580,048	1912	2,271,700	1,822,357
1906	1,747,595	658,739	1913	2,809,000	1,819,281

California Vegetable Pack by Varieties, 1909-1913.

(Cases.)

	1909	1910	1911	1912	1913
Tomatoes	672,260	1,350,310	1,500,000	1,500,000	1,490,000
Peas	104,010	167,775	185,000	270,000	200,000
Asparagus	410,965	617,275	700,000	730,000	710,000
Spinach				16,500	16,000
Squash				21,000	19,000
Beans and other vegetables	55,485	115,285	130,000	172,500	156,000
Total vegetables	1,242,720	2,250,645	2,515,000	2,809,000	2,591,000
Total fruits and vegetables	3,289,721	6,259,893	6,684,023	7,739,150	6,606,500

The total value of all vegetables imported was $11,358,761, which includes upward of 8,000,000 pounds of mushrooms; and the total value of domestic vegetables exported, $7,353,537.

GINSENG IN CALIFORNIA.

Many demands are made for information regarding the cultivation of this plant, many appearing to believe that owing to its high price it must be an exceedingly profitable crop, but it offers little inducement

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for inexperienced growers looking for quick profits from a small investment. It is a native of Manchuria and Korea and has long been valued by the Chinese for medicinal use, and the dry roots have been exported from this country for a long period, almost all of it being shipped from San Francisco to Hongkong. The plant takes eighteen months to germinate, and six years to mature; it requires good soil, shade, and careful cultivation. Last year in the San Francisco market it brought from $4 to $7 per pound, according to grade.

The preference for wild ginseng over the American cultivated root in the Chinese ginseng markets greatly increased during the past year, and the general situation calls for more care by American producers in growing and shipping their root to comply with Chinese ideas and preferences. The trade was dominated entirely by the wild root, which increased materially in price, while the cultivated variety declined.

During the year receipts in Hongkong, which usually represent about three fourths the imports into all China, amounted to 165,462 pounds, 103,264 pounds of which were wild root and 62,198 pounds cultivated American root. The receipts in 1912 were about 137,000 pounds, most of which was from the United States. The receipts in 1913 were unusually heavy; the total turnover in the ginseng trade in Hongkong during the year was about $1,400,000.

The market rates per pound on December 31, 1913, were $12.50 gold for extra and selected, $11 for good root, and $9.55 for fair root, as compared with $10.10, $9 and $7.87 per pound on December 31, 1912. The general ginseng situation in China is materially affected by the fact that the Japanese Government monopoly of wild Korean root, managed by a single firm, is in a position largely to dictate terms for that variety.

The rates for cultivated root during 1913 varied from $2.20 to $11 gold per pound, depending upon quality and condition. A large portion of the American imports were sold as of too poor a quality to be graded in the usual manner. The necessity of preparing root in accordance with Chinese ideas, rather than American ideas of what the Chinese ought to want, must not be forgotten. It is probable that growers of the United States lost fully $200,000 during the past year because of the manner in which their root was prepared. The root should be grown to resemble the wild as nearly as possible; it should be packed to preserve any peculiar natural shape and especially should the little head be kept intact, and it should be kept rough, with all natural markings preserved. Smooth, round root brings poor prices. The wild root is the standard and that idea should be kept in mind by all producers.*

Exports of Ginseng From the United States.

Year	Pounds	Value	Average value per pound
1908	154,180	$1,111,994	$7 21
1909	186,257	1,270,632	6 82
1910	192,406	1,439,434	7 48
1911	153,999	1,088,202	7 06
1912	155,308	1,199,301	7 20

*Consular Reports, March, 1914.

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Vegetables, Flowers and Plants and Nursery Products.

Crop	Number of farms	Acres		Value of products	
		1899	1909	1899	1909
Vegetables other than potatoes and sweet potatoes	*33,755	32,401	79,163	$2,858,832	$6,886,885
Farms reporting a product of $500 or over	2,075	-------	53,369	----------	4,836,001
All other farms	31,680	-------	25,794	----------	2,050,884
Flowers and plants, total	442	672	1,013	580,646	1,388,513
Farms reporting a product of $250 or over	347	-------	-------	----------	1,373,577
All other farms	95	-------	-------	----------	14,936
Nursery products, total	566	2,914	4,803	558,329	2,212,788
Farms reporting a product of $250 or over	296	-------	-------	----------	2,134,713
All other farms	270	-------	-------	----------	78,075

In 1909 the total acreage of potatoes and other vegetables was 151,962 and their value $12,121,958. Excluding potatoes and sweet potatoes the acreage of vegetables was 79,163 and their value $6,887,000, both being more than twice as great as in 1899. The above table distinguishes between farms which make the raising of vegetables a business of some importance, and others on most of which vegetables are raised mainly for home consumption.

FLOWERS, PLANTS, AND NURSERY PRODUCTS.

The choice of crops by the florist is largely influenced by changes in popular taste, the camellia, which was the most popular flower years ago, having been superseded in recent years by the rose, carnation, violet, chrysanthemum, and lily of the valley. There is also a growing demand for orchids.

The raising of flowers and plants and of nursery products is also of considerable importance in California, 5,816 acres being devoted to them in 1909, and the output being valued at $3,601,301. Most of the product was raised on farms where these branches of agriculture were carried on as an important business.

In 1909, a total of 96,230,420 square feet, or over 2,200 acres, of land under glass was reported in the United States.

In California, 430 farms reported as florists' establishments, with 1,572,480 square feet under glass.

There is comparatively little land under glass in California, compared with the eastern states, as the climate does not require it.

Nursery Products.

It has only been within the last thirty or forty years that the nursery industry has developed into a position of importance. Nursery stock was first grown as an adjunct to the general crops of the farm. It is difficult to determine when and by whom the first commercial nursery was established, but William Prince of Flushing, Long Island, is named as pioneer in the industry, who commenced this business about the middle of the last century.

*Not including 9,393 farms that had vegetable gardens, but gave no information as to their products.

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CALIFORNIA FARM CROPS FOR FORTY-SIX YEARS. 1868-1913.

Barley, Buckwheat, Corn, Oats, Rye, Wheat, Potatoes, Hay.*

(Compiled from the Reports of the United States Department of Agriculture.)

California Barley Crops, 1868-1913.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	375,000	28.0	10,500,000	$1 03	$10,815,000
1869	348,016	35.3	12,285,000	65	7,985,250
1870	274,275	26.9	7,378,000	98	7,230,440
1871	364,350	20.0	7,287,000	1 08	7,869,960
1872	608,196	12.2	7,359,000	85	6,255,150
1873	385,433	26.5	10,213,991	85	8,681,892
1874	551,550	20.0	11,031,000	78	8,604,180
1875	502,777	18.0	9,050,000	91	8,235,500
1876	536,363	22.0	11,800,000	69	8,142,000
1877	487,500	16.0	7,800,000	90	7,020,000
1878	650,000	23.0	14,950,000	65	9,717,500
1879	630,500	23.0	14,501,500	56	8,120,840
1880	520,150	28.3	14,720,245	61	8,979,349
1881	537,000	18.9	10,146,000	77	7,812,420
1882	558,480	16.4	9,131,400	67	6,118,038
1883	625,498	18.2	10,135,854	63	6,385,588
1884	688,048	23.6	16,217,000	52	8,432,840
1885	701,809	18.1	12,703,000	79	10,035,167
1886	722,450	22.2	16,038,000	65	10,424,700
1887	794,695	20.5	16,291,000	52	8,471,320
1888	786,748	20.0	15,735,000	58	9,126,277
1889	815,995	21.5	17,548,386	45	7,896,774
1890	677,276	22.3	15,103,255	75	11,327,441
1891	812,731	23.7	19,261,725	61	11,749,652
1892	845,240	24.0	20,285,760	47	9,534,307
1893	760,716	22.5	17,116,110	42	7,188,766
1894	737,895	15.2	11,216,004	45	5,047,202
1895	937,127	20.3	19,023,678	40	7,609,471
1896	918,384	21.6	19,837,094	48	9,521,805
1897	881,649	23.0	20,277,927	54	10,950,081
1898	872,833	10.5	9,164,746	65	5,957,085
1899	855,376	26.0	22,239,776	50	11,119,888
1900	889,591	16.7	14,856,170	43	6,388,153
1901	1,089,785	26.0	28,334,410	41	11,617,108
1902	1,144,274	26.0	29,751,124	63	18,743,208
1903	1,201,488	25.7	30,878,242	61	18,835,728
1904	1,237,533	22.7	28,091,999	60	16,855,199
1905	1,237,533	21.5	26,606,960	59	15,698,106
1906	1,425,000	27.2	38,760,000	54	20,930,400
1907	1,040,000	28.9	30,056,000	78	23,444,000
1908	1,082,000	23.5	25,427,000	74	18,816,000
1909	1,180,000	26.5	31,270,000	74	23,140,000
1910	1,500,000	31.0	46,500,000	55	25,575,000
1911	1,450,000	28.0	40,600,000	85	34,510,000
1912	1,392,000	30.0	41,760,000	70	29,232,000
1913	1,275,000	26.0	33,150,000	68	22,542,000

*For production of these crops by counties, see page 98.

Exports of domestic barley in 1913, 17,536,703 bushels.

Duty on Imported Cereals, Potatoes, and Hay.

Barley.....15c per bushel of 48 pounds	Oats.....6c per bushel of 32 pounds
Wheat .....free	Rye .....free
Buckwheat .....free	Potatoes .....free
Corn .....free	Hay .....$2.00 per ton
Wheat flour.....free	

NOTE.—The imports of breadstuffs are very small. In 1913 the quantities were: Corn 903,062 bushels, oats 723,899 bushels, wheat 797,528 bushels, and wheat flour 107,558 barrels.

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California Corn Crops, 1868-1913.

Year	Acreage	Acreage yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	27,111	45.0	1,220,000	$1 00	$1,220,000
1869	31,521	41.4	1,305,000	90	1,174,500
1870	30,870	35.6	1,099,000	1 20	1,318,800
1871	24,578	36.0	934,000	1 16	1,083,440
1872	40,000	35.0	1,400,000	1 00	1,400,000
1873	37,561	41.0	1,540,000	73	1,124,200
1874	44,668	36.2	1,617,000	98	1,584,660
1875	41,322	36.3	1,500,000	1 07	1,605,000
1876	48,484	33.0	1,600,000	1 07	1,712,000
1877	51,667	30.0	1,550,000	95	1,472,500
1878	100,500	34.5	3,467,250	60	2,080,350
1879	100,500	28.0	2,814,000	79	2,223,060
1880	80,650	32.0	2,580,800	76	1,961,408
1881	96,700	27.2	2,633,000	78	2,053,740
1882	98,634	28.3	2,790,900	85	2,372,265
1883	100,607	24.5	2,464,800	85	2,095,080
1884	160,000	30.0	4,800,000	60	2,880,000
1885	155,200	24.7	3,840,000	68	2,611,200
1886	156,752	27.2	4,262,000	62	2,642,440
1887	156,752	30.0	4,703,000	61	2,868,830
1888	155,184	27.8	4,314,000	70	3,019,800
1889	158,288	28.2	4,464,000	57	2,544,322
1890	159,871	27.5	4,396,000	65	2,857,694
1891	161,470	34.5	5,571,000	71	3,955,208
1892	72,500	30.3	2,197,000	55	1,208,213
1893	71,775	37.1	2,275,268	50	1,137,634
1894	66,751	19.3	1,288,294	57	734,328
1895	65,416	34.5	2,256,852	53	1,196,132
1896	59,529	37.0	2,202,573	53	1,167,364
1897	60,720	31.5	1,912,680	56	1,071,101
1898	45,540	26.0	1,184,040	62	734,105
1899	56,925	27.0	1,536,975	60	922,185
1900	54,079	25.0	1,351,975	61	824,705
1901	59,703	31.0	1,850,793	68	1,258,539
1902	60,300	30.5	1,839,150	77	1,416,146
1903	57,888	30.7	1,777,162	74	1,315,100
1904	54,415	28.0	1,556,269	78	1,213,890
1905	56,592	32.0	1,810,944	76	1,376,317
1906	57,158	34.9	1,994,814	67	1,336,525
1907	54,000	34.0	1,836,000	85	1,561,000
1908	50,000	32.0	1,600,000	88	1,408,000
1909	50,000	34.8	1,740,000	91	1,583,000
1910	50,000	37.5	1,875,000	80	1,500,000
1911	51,000	36.0	1,836,000	90	1,652,000
1912	52,000	37.0	1,924,000	85	1,635,000
1913	55,000	33.0	1,815,000	88	1,597,000

Exports of domestic corn in 1913, 49,064,967 bushels; value, $28,800,544.

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California Buckwheat Crops, 1868-1896.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	777	18.0	14,000	$1 00	$14,000
1869	882	17.0	15,000	80	12,000
1870	692	32.5	22,500	1 07	24,075
1871	819	26.0	21,300	1 30	27,690
1872	942	21.0	19,800	1 11	21,978
1873	851	23.5	20,000	1 20	24,000
1874	869	23.0	20,000	1 20	24,000
1875	1,400	25.0	35,000	1 50	52,500
1876	Not reported.				
1877	Not reported.				
1878	Not reported.				
1879	Not reported.				
1880	1,040	17.0	17,680	75	13,260
1881	340	17.9	6,100	1 00	6,100
1882	1,150	22.0	25,300	80	20,240
1883	1,161	22.2	25,806	90	23,225
1884	1,219	23.0	28,000	60	16,800
1885	1,243	20.1	25,000	68	16,905
1886	Not reported.				
1887	Not reported.				
1888	Not reported.				
1889	664	15.6	10,388	52	5,381
1890	677	14.5	9,816	73	7,166
1891	683	15.3	10,450	58	8,051
1892	697	16.5	11,500	53	6,141
1893	691	21.5	14,857	71	10,548
1894	691	18.0	12,438	45	5,597
1895	726	30.0	21,780	64	13,939
1896	690	18.7	12,903	39	5,032

NOTE.—The production of buckwheat is so small that it is seldom recorded, the area being only a few hundred acres. The crop is raised in any quantity in only twenty-four states. Very little is exported. The acreage in buckwheat in 1910 was only 849, producing 14,681 bushels.

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California Rye Crops, 1868-1913.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	1,428	14.0	20,000	$1 40	$28,000
1869	673	31.5	21,200	1 22	25,864
1870	655	38.0	24,900	1 19	29,631
1871	922	27.0	24,900	1 40	34,860
1872	3,000	12.0	36,000	1 02	36,720
1873	2,300	20.0	46,000	90	41,400
1874	2,555	18.0	46,000	1 03	47,380
1875	4,285	17.5	75,000	92	69,000
1876	5,131	15.2	78,000	95	74,100
1877					
1878	13,000	15.0	195,000	75	146,250
1879	13,000	17.7	230,100	1 17	269,217
1880	19,169	16.0	306,764	83	254,564
1881	18,800	11.1	209,000	1 00	209,000
1882	21,295	8.8	187,131	85	159,061
1883	29,813	7.0	209,587	95	199,108
1884	30,409	10.3	314,000	68	213,520
1885	30,105	10.3	310,000	76	235,662
1886	30,409	12.0	365,000	76	277,400
1887	30,409	9.5	289,000	80	231,200
1888	29,801	11.2	334,000	67	223,627
1889	27,413	8.9	243,871	56	136,568
1890	27,413	14.0	383,782	70	268,647
1891	27,961	16.5	461,357	90	415,221
1892	28,800	11.5	331,200	67	221,904
1893	28,800	17.5	504,000	60	302,400
1894	29,376	13.2	387,763	60	232,658
1895	36,720	11.6	425,952	58	247,052
1896	38,556	14.5	559,062	60	335,437
1897	40,484	12.2	493,905	65	321,038
1898	40,079	9.0	360,711	70	252,498
1899	36,472	15.0	547,080	78	426,722
1900	38,660	13.0	502,580	58	291,496
1901	66,087	12.8	845,914	57	482,171
1902	67,409	12.0	808,908	75	606,681
1903	68,083	12.3	837,421	77	644,814
1904	67,402	7.6	512,255	78	399,559
1905	67,402	13.0	876,226	77	674,694
1906	62,684	12.8	802,355	71	569,672
1907	65,800	19.0	1,251,000	85	1,063,000
1908	66,000	12.0	792,000	88	697,000
1909	61,000	13.8	842,000	1 04	876,000
1910	7,000	17.0	119,000	86	102,000
1911	8,000	17.0	136,000	85	116,000
1912	8,000	17.6	141,000	90	127,000
1913	8,000	15.0	120,000	75	90,000

The exports of domestic rye were considerably larger than the two previous years, in 1913 the quality being 1,822,962 bushels; value $1,260,384, compared with 2,623 bushels in 1911, and 5,548 bushels in 1912.

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California Oat Crops, 1868-1913.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	63,333	30.0	1,900,000	$0 70	$1,330,000
1869	47,846	41.8	2,000,000	62	1,240,000
1870	44,535	35.5	1,581,000	59	932,790
1871	37,925	40.0	1,517,000	70	1,061,900
1872	90,000	25.0	2,250,000	74	1,665,000
1873	72,733	30.0	2,182,000	84	1,832,880
1874	65,810	35.8	2,356,000	69	1,625,640
1875	65,625	32.0	2,100,000	72	1,512,000
1876	70,000	35.0	2,450,000	74	1,813,000
1877	70,000	25.0	1,750,000	73	1,277,500
1878	145,000	30.0	4,350,000	69	3,001,500
1879	153,700	33.0	5,072,100	67	3,398,307
1880	49,900	29.0	1,447,100	65	940,615
1881	67,100	23.1	1,548,000	60	928,800
1882	64,416	24.0	1,548,000	58	897,840
1883	70,858	25.8	1,826,600	58	1,059,428
1884	79,600	27.0	2,149,000	38	816,620
1885	78,008	27.0	2,106,000	48	1,010,880
1886	80,348	28.8	2,317,000	44	1,019,480
1887	81,955	26.8	2,196,000	58	1,273,680
1888	73,760	25.3	1,866,000	60	1,119,600
1889	75,973	25.0	1,899,000	45	854,696
1890	70,655	27.5	1,943,000	56	1,088,087
1891	84,786	28.5	2,416,000	60	1,449,841
1892	67,829	29.3	1,987,000	40	794,956
1893	59,011	25.5	1,504,781	38	571,817
1894	57,831	35.6	2,058,784	44	905,865
1895	60,144	28.1	1,690,046	39	659,118
1896	58,941	31.0	1,827,171	44	803,955
1897	57,173	18.0	1,029,114	49	504,266
1898	58,888	33.0	1,943,304	50	971,652
1899	59,477	31.0	1,843,787	47	866,580
1900	60,072	24.6	1,477,771	46	679,775
1901	160,768	30.4	4,887,347	44	2,150,433
1902	168,806	30.5	5,148,583	51	2,625,777
1903	165,430	34.8	5,756,964	54	3,108,761
1904	167,084	34.1	5,697,564	57	3,247,611
1905	168,755	28.0	4,725,140	51	2,409,821
1906	163,692	31.5	5,156,298	52	2,681,275
1907	136,000	33.5	4,556,000	71	3,235,000
1908	200,000	33.5	6,700,000	67	4,489,000
1909	200,000	31.4	6,280,000	66	4,145,000
1910	200,000	37.0	7,400,000	50	3,700,000
1911	210,000	34.0	7,140,000	59	4,213,000
1912	200,000	39.0	7,800,000	55	4,290,000
1913	210,000	32.0	6,636,000	60	3,982,000

The exports of domestic oats in 1913 amounted to 33,759,177 bushels, valued at $13,206,247, compared with 2,171,503 bushels; value $1,135,635, in 1912.

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California Wheat Crops, 1868-1913.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	1,050,000	20.0	21,000,000	$1 03	$21,630,000
1869	1,098,901	18.2	20,000,000	93	18,600,000
1870	746,052	19.0	14,175,000	1 10	15,592,000
1871	1,523,363	11.0	16,757,000	1 41	23,627,370
1872	2,098,360	12.2	25,600,000	1 11	26,416,000
1873	1,592,889	13.5	21,504,000	1 32	28,385,280
1874	2,150,000	13.2	28,380,000	99	28,096,200
1875	2,163,636	11.0	23,800,000	1 18	28,084,000
1876	2,307,692	13.0	30,000,000	1 14	34,200,000
1877	2,315,789	9.5	22,000,000	1 30	28,600,000
1878	2,470,000	17.0	41,900,000	1 03	43,249,700
1879	2,500,000	14.0	35,000,000	1 23	43,050,000
1880	2,117,350	16.0	33,877,600	96	32,522,496
1881	2,367,200	12.0	31,406,000	1 03	32,348,180
1882	2,767,000	13.0	36,046,600	90	32,441,940
1883	2,794,000	13.0	36,322,000	1 00	36,322,000
1884	3,360,000	13.2	44,320,000	72	31,910,400
1885	2,822,400	9.4	26,592,000	67	17,816,640
1886	3,104,640	11.6	36,165,000	73	26,400,450
1887	2,766,235	11.0	30,429,000	74	22,517,460
1888	2,351,300	12.1	28,451,000	85	24,183,350
1889	3,291,820	13.3	43,781,000	70	30,646,644
1890	2,426,730	12.0	29,121,000	76	22,131,778
1891	2,815,007	13.0	36,595,000	95	34,765,336
1892	3,012,057	13.0	39,157,000	68	26,626,584
1893	2,620,490	13.3	34,852,517	53	18,471,834
1894	2,688,204	11.3	30,576,705	57	17,314,722
1895	3,084,446	13.0	40,097,798	60	24,058,679
1896	3,088,849	14.6	45,097,195	83	37,430,672
1897	3,239,402	10.0	32,394,020	83	26,887,037
1898	1,343,341	9.1	12,224,405	72	8,801,570
1899	2,393,185	14.1	33,743,909	62	20,921,223
1900	2,771,226	10.3	28,543,628	58	16,555,304
1901	2,672,547	13.0	34,743,111	60	20,845,847
1902	2,052,679	10.9	22,374,201	80	17,899,361
1903	1,868,410	11.2	20,926,192	87	18,205,787
1904	1,618,043	10.8	17,474,864	88	15,377,880
1905	1,886,238	9.3	17,542,013	82	14,384,451
1906	1,572,144	17.1	26,883,662	75	20,162,746
1907	1,368,000	15.0	20,520,000	98	20,110,000
1908	800,000	14.6	11,680,000	1 02	11,914,000
1909	825,000	14.0	11,550,000	1 11	12,820,000
1910	550,000	18.0	9,900,000	94	9,306,000
1911	480,000	18.0	8,640,000	88	7,603,000
1912	370,000	17.0	6,290,000	93	5,850,000
1913	300,000	14.0	4,200,000	95	3,990,000

NOTE.—All winter wheat; no spring wheat grown in California.

The exports of domestic wheat and flour were the largest for many years, being 91,602,974 bushels of wheat, valued at $89,036,428, compared with 30,160,212 bushels in 1912, value $28,477,584; and 11,394,805 barrels of flour, value $53,171,537, which is about the average for the past three years.

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California Potato Crops, 1868-1913.

Year	Acreage	Average yield per acre, bushels	Production, bushels	Average farm price, December 1	Farm value, December 1
1868	23,800	90	2,142,000	$0 56	$1,199,520
1869	19,200	125	2,400,000	79	1,896,000
1870	12,317	148	1,823,000	1 35	2,461,050
1871	11,032	152	1,677,000	91	1,526,070
1872	32,203	59	1,900,000	1 13	2,147,000
1873	25,454	110	2,800,000	85	2,380,000
1874	22,400	120	2,688,000	1 11	2,983,680
1875	29,166	120	3,500,000	94	3,290,000
1876	32,000	125	4,000,000	83	3,320,000
1877	32,000	100	3,200,000	75	2,400,000
1878	38,400	114	4,377,600	98	4,290,048
1879	39,700	107	4,247,900	65	2,761,135
1880	39,300	140	5,502,000	79	4,346,580
1881	52,697	85	4,479,245	80	3,583,349
1882	53,751	82	4,434,453	60	2,660,672
1883	54,826	81	4,440,906	60	2,664,544
1884	58,664	95	5,573,000	60	3,343,800
1885	57,491	85	4,887,000	63	3,078,643
1886	60,940	78	4,753,000	66	3,136,980
1887	63,378	80	5,070,000	57	2,889,900
1888	60,843	73	4,442,000	61	2,709,339
1889	38,500	91	3,619,000	45	1,628,550
1890	39,655	95	3,767,225	68	2,561,713
1891	41,241	95	3,918,465	54	2,115,971
1892	38,354	75	2,876,550	59	1,697,164
1893	37,203	96	3,571,488	50	1,785,744
1894	26,786	52	1,392,872	49	682,507
1895	25,179	75	1,888,425	48	906,444
1896	22,158	80	1,772,640	53	939,499
1897	21,493	105	2,256,765	49	1,105,815
1898	20,418	95	1,939,710	55	1,066,840
1899	26,543	119	3,158,617	63	1,989,929
1900	26,808	104	2,788,032	53	1,477,657
1901	45,259	101	4,571,159	77	3,519,792
1902	47,975	118	5,661,050	58	3,283,409
1903	46,536	130	6,049,680	66	3,992,789
1904	47,001	129	6,063,129	67	4,062,296
1905	50,291	165	8,298,015	67	5,559,670
1906	50,291	125	6,286,375	74	4,651,918
1907	48,000	145	6,900,000	90	6,264,000
1908	49,000	107	5,243,000	77	4,037,000
1909	60,000	130	7,800,000	77	6,006,000
1910	70,000	130	9,100,000	85	7,735,000
1911	72,000	135	9,720,000	90	8,748,000
1912	78,000	130	10,140,000	65	6,591,000
1913	68,000	119	8,092,000	70	5,664,000

The imports of potatoes generally average less than half a million bushels, but in 1912 the quantity was 13,734,000 bushels; value $7,168,627. The export of domestic potatoes is small, the quantity for 1912 being 1,237,276 bushels; value $1,414,297. In 1913 the imports fell again to 327,230 bushels; value $303.214

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California Hay Crops, 1868-1913.

Year	Acreage	Average yield per acre, tons	Production, tons	Average farm price, December 1	Farm value, December 1
1868	338,345	1.33	450,000	$15 00	$6,750,000
1869	303,225	1.55	470,000	12 70	5,969,000
1870	416,891	1.48	617,000	16 70	10,303,900
1871	415,503	1.29	536,000	21 85	11,711,600
1872	413,333	1.50	620,000	15 60	9,672,000
1873	520,438	1.37	713,000	16 50	11,764,500
1874	458,357	1.40	641,700	15 09	9,683,253
1875	492,857	1.40	690,000	16 59	11,447,100
1876	629,629	1.35	850,000	11 61	9,868,500
1877	622,222	.90	560,000	15 00	8,400,000
1878	620,000	2.05	1,271,000	12 61	16,027,310
1879	756,380	1.63	1,232,900	9 93	12,242,697
1880	698,643	1.80	1,257,556	12 72	15,996,138
1881	798,830	1.35	1,078,421	12 20	13,156,736
1882	806,818	1.39	1,121,558	13 00	14,580,254
1883	871,363	1.50	1,307,045	12 50	16,338,063
1884	930,000	1.50	1,395,000	10 31	14,382,450
1885	939,300	1.20	1,127,160	11 50	12,962,340
1886	967,479	1.34	1,296,234	8 15	10,564,307
1887	1,160,975	1.30	1,509,268	11 50	17,356,582
1888	1,184,195	1.30	1,539,454	12 03	18,519,632
1889	1,431,574	1.55	2,218,285	9 25	20,519,136
1890	1,412,676	1.40	1,977,746	10 50	20,766,333
1891	1,497,437	1.40	2,096,412	11 00	23,060,532
1892	1,617,232	1.50	2,425,848	8 76	21,250,428
1893	1,681,921	1.69	2,842,446	7 87	22,370,050
1894	1,665,102	1.93	3,213,647	9 50	30,529,647
1895	1,681,753	1.66	2,791,710	7 06	19,709,473
1896	1,732,206	1.65	2,858,140	6 35	18,149,189
1897	1,697,562	1.60	2,716,099	9 00	24,444,891
1898	1,459,903	1.60	2,335,845	14 25	33,285,791
1899	1,708,087	1.63	2,784,182	8 00	22,273,456
1900	793,491	1.51	1,708,171	8 15	22,071,594
1901	550,325	1.82	1,001,592	7 92	7,932,609
1902	555,828	1.81	1,006,049	9 41	9,466,921
1903	550,270	2.08	1,144,562	11 66	13,345,593
1904	583,266	2.03	1,184,071	10 41	12,326,179
1905	589,119	2.40	1,413,886	10 05	14,209,554
1906	612,684	1.85	1,133,465	11 25	12,751,481
1907	637,000	1.75	1,115,000	12 50	13,938,000
1908	605,000	1.35	817,000	13 25	10,825,000
1909	650,000	1.70	1,105,000	11 50	12,708,000
1910	2,400,000	1.83	4,392,000	9 60	*42,163,000
1911	2,500,000	1.75	4,375,000	10 90	*47,688,000
1912	2,500,000	1.53	3,825,000	13 70	*52,402,000
1913	2,400,000	1.50	3,600,000	13 50	48,600,000

*Including forage.

The imports and exports of hay are not large. In 1913 155,763 tons were imported and 60,702 tons exported.

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TABLE XXII.

Value of All Crops.

(From Census Reports in 1909.)

Counties	Cereals	Other grains and seeds	Hay and forages	Vegetables	Fruits and nuts	All other crops	Total
Alameda	$394,907 00	$31,257 00	$1,547,119 00	$810,628 00	$860,977 00	$686,079 00	$4,276,967 00
Alpine	25,833 00	8 00	49,147 00	3,291 00	1,444 00	3,483 00	83,206 00
Amador	55,405 00	90 00	229,982 00	41,583 00	59,599 00	65,651 00	452,270 00
Butte	556,107 00	767 00	806,735 00	55,314 00	797,893 00	147,699 00	2,364,515 00
Calaveras	7,881 00	755 00	217,191 00	58,093 00	53,368 00	71,880 00	409,168 00
Colusa	1,578,543 00	36,023 00	340,462 00	30,458 00	129,389 00	49,424 00	2,164,299 00
Contra Costa	604,035 00	104,487 00	1,617,610 00	1,125,668 00	499,436 00	80,818 00	4,032,054 00
Del Norte	8,877 00	164 00	85,763 00	10,605 00	2,878 00	3,665 00	111,952 00
El Dorado	15,189 00	120 00	196,638 00	41,950 00	143,924 00	73,693 00	471,514 00
Fresno	510,053 00	13,685 00	1,702,818 00	108,690 00	5,279,794 00	376,147 00	7,991,187 00
Glenn	909,796 00	700 00	327,008 00	13,644 00	35,661 00	64,101 00	1,350,910 00
Humboldt	117,802 00	19,249 00	893,913 00	175,817 00	141,493 00	90,151 00	1,438,425 00
Imperial	755,239 00	----------	893,913 00	175,817 00	141,493 00	90,151 00	1,438,425 00
Inyo	156,416 00	3,496 00	252,610 00	57,314 00	44,047 00	18,760 00	532,643 00
Kern	500,973 00	13,580 00	953,044 00	96,968 00	159,698 00	78,992 00	1,803,255 00
Kings	550,869 00	20,704 00	1,171,101 00	140,137 00	1,219,568 00	77,735 00	3,180,114 00
Lake	129,857 00	17,641 00	196,995 00	44,701 00	90,001 00	38,601 00	517,796 00
Lassen	214,275 00	20,267 00	582,371 00	51,047 00	16,304 00	13,685 00	897,949 00
Los Angeles	806,507 00	218,428 00	3,430,698 00	1,255,093 00	6,731,532 00	2,278,626 00	14,720,884 00
Madera	1,220,003 00	900 00	290,258 00	27,995 00	126,124 00	21,138 00	1,686,418 00
Marin	19,766 00	15 00	425,987 00	42,916 00	31,816 00	13,883 00	534,383 00
Mariposa	18,515 00	1,430 00	109,699 00	28,024 00	43,025 00	29,939 00	230,632 00
Mendocino	175,678 00	927 00	526,680 00	121,941 00	166,534 00	540,218 00	1,531,986 00
Merced	1,691,556 00	11,251 00	1,355,098 00	187,563 00	147,964 00	30,142 00	3,423,574 00
Modoc	329,318 00	59,506 00	621,177 00	98,574 00	49,894 00	17,569 00	1,176,038 00
Mono	5,023 00	552 00	85,083 00	13,396 00	3,038 00	665 00	107,757 00
Monterey	1,695,220 00	57,676 00	1,125,740 00	330,296 00	438,763 00	677,840 00	4,325,535 00
Napa	168,471 00	6,224 00	465,362 00	126,348 00	766,745 00	104,292 00	1,637,442 00
Nevada	3,101 00	58 00	159,879 00	54,554 00	89,771 00	78,963 00	386,326 00
Orange	562,563 00	653,763 00	976,896 00	540,864 00	2,497,734 00	944,517 00	6,176,337 00
Placer	104,677 00	----------	194,464 00	52,253 00	1,318,731 00	143,294 00	1,813,419 00
Plumas	74,736 00	----------	299,817 00	21,772 00	3,872 00	32,722 00	432,919 00
Riverside	895,051 00	10,180 00	1,624,675 00	133,199 00	2,393,371 00	77,100 00	5,133,576 00
Sacramento	232,584 00	405,143 00	786,239 00	509,231 00	2,265,690 00	521,123 00	4,720,010 00
San Benito	268,068 00	138,590 00	963,249 00	34,425 00	281,891 00	54,932 00	1,741,155 00
San Bernardino	93,464 00	1,097 00	932,249 00	107,283 00	5,357,098 00	327,042 00	6,818,233 00

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San Diego	458,836 00	91,268 00	1,110,127 00	174,869 00	941,767 00	84,269 00	2,861,136 00
San Francisco		3,310 00	1,460 00	190,965 00	920 00	127,271 00	323,926 00
San Joaquin	3,238,767 00	533,977 00	1,763,286 00	2,149,300 00	1,307,448 00	89,462 00	9,082,240 00
San Luis Obispo	869,268 00	517,452 00	681,886 00	141,685 00	155,094 00	116,427 00	2,481,812 00
San Mateo	260,218 00	36,742 00	361,266 00	459,470 00	73,272 00	204,403 00	1,395,371 00
Santa Barbara	585,079 00	869,908 00	771,922 00	244,205 00	538,465 00	558,671 00	3,568,250 00
Santa Clara	170,190 00	265,665 00	1,587,494 00	450,065 00	4,234,874 00	260,150 00	6,968,438 00
Santa Cruz	94,360 00	24,514 00	327,572 00	164,518 00	1,656,212 00	141,259 00	2,408,435 00
Shasta	74,831 00	1,719 00	410,532 00	85,381 00	248,442 00	118,890 00	939,795 00
Sierra	25,769 00		180,874 00	12,369 00	7,618 00	7,524 00	234,154 00
Siskiyou	325,312 00	6,972 00	851,817 00	130,817 00	41,170 00	70,306 00	1,426,394 00
Solano	1,292,481 00	103,660 00	572,822 00	84,337 00	1,495,713 00	20,953 00	3,569,966 00
Sonoma	50,993 00	809 00	1,170,906 00	185,749 00	2,034,805 00	1,008,116 00	4,451,378 00
Stanislaus	1,315,180 00	17,411 00	1,424,229 00	181,282 00	207,508 00	53,050 00	3,198,660 00
Sutter	588,103 00	150,486 00	419,331 00	57,368 00	470,985 00	63,149 00	1,749,422 00
Tehama	249,157 00	756 00	376,843 00	46,108 00	428,108 00	127,278 00	1,228,250 00
Trinity	12,394 00	604 00	167,713 00	58,211 00	11,874 00	18,549 00	269,345 00
Tulare	1,442,685 00	17,311 00	1,362,609 00	192,030 00	2,053,596 00	285,763 00	5,353,994 00
Tuolumne	14,453 00	183 00	167,810 00	39,885 00	31,044 00	44,121 00	297,496 00
Ventura	347,954 00	2,711,809 00	931,688 00	61,873 00	1,795,606 00	902,824 00	6,751,759 00
Yolo	1,032,710 00	112,847 00	984,115 00	126,359 00	677,099 00	341,320 00	3,274,450 00
Yuba	134,728 00	2,075 00	214,158 00	38,083 00	73,358 00	237,734 00	700,136 00
Totals	$28,039,826 00	$7,318,211 00	$42,187,215 00	$12,121,958 00	$50,706,869 00	$12,736,984 00	$153,111,013 00

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FARM CROPS BY COUNTIES.

CEREALS.

Barley, Corn, Oats, Rye, Wheat, Potatoes, Hay and Forage, in 1910.
(From Reports of the Bureau of the Census.)

TABLE XXIII.
Barley, Corn, and Oats.

Counties	Barley		Corn		Oats	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
Alameda	12,650	473,575	503	13,097	1,725	53,745
Alpine	38	1,480			135	7,274
Amador	1,513	29,071	301	12,526	1,354	30,813
Butte	17,705	326,447	359	14,856	1,432	54,685
Calaveras	222	4,833	80	1,776	108	2,121
Colusa	89,985	1,949,223	706	16,619	771	12,556
Contra Costa	18,665	731,970	263	6,158	1,112	40,178
Del Norte	32	840	1	12	216	12,078
El Dorado	50	884	38	768	543	10,504
Fresno	32,132	694,234	1,422	37,726	1,554	20,027
Glenn	53,513	1,002,587	671	21,999	1,283	32,620
Humboldt	1,296	65,991	253	7,633	2,823	75,808
Imperial	36,986	908,916	690	14,419	30	372
Inyo	678	19,381	1,883	57,917	573	28,875
Kern	32,492	517,029	466	7,132	82	770
Kings	19,287	402,432	2,274	43,688	109	4,490
Lake	2,825	54,758	981	26,317	843	19,914
Lassen	3,244	63,471	4	93	977	25,647
Los Angeles	32,804	785,129	9,084	249,295	973	38,720
Madera	90,341	1,170,945	1	50	10,569	175,047
Marin	16	231	52	2,061	850	31,430
Mariposa	1,434	19,130	174	2,330	55	1,100
Mendocino	1,904	43,370	533	14,454	3,087	81,959
Merced	88,145	2,009,531	1,877	52,778	19,843	338,041
Modoc	8,650	227,473	6	209	728	22,138
Mono			4	160	42	3,000
Monterey	98,923	2,026,334	845	15,552	8,734	240,760
Napa	3,048	58,300	2,389	59,579	1,366	32,155
Nevada	30	249	5	208	119	1,559
Orange	27,384	671,526	3,054	91,643	995	30,858
Placer	1,318	17,128	27	1,055	3,030	40,397
Plumas	1,260	12,216			2,193	75,606
Riverside	56,946	958,526	372	12,421	3,767	85,540
Sacramento	4,599	75,575	795	34,089	4,174	66,949
San Benito	10,955	307,215	401	5,389	776	13,826
San Bernardino	3,260	85,480	920	14,839	436	16,598
San Diego	17,745	284,677	4,544	71,874	7,690	177,485
San Francisco						
San Joaquin	125,114	3,827,187	2,547	57,028	23,208	396,661
San Luis Obispo	26,370	667,718	1,509	24,015	1,139	35,884
San Mateo	917	26,001	11	164	16,125	462,566
Santa Barbara	26,294	683,605	1,240	25,979	9,494	233,171
Santa Clara	8,903	200,893	411	9,791	247	9,424
Santa Cruz	1,000	34,226	1,136	22,284	2,282	59,812
Shasta	1,298	21,551	163	4,655	723	8,915
Sierra	466	7,362	1	40	526	11,431
Siskiyou	4,282	60,118	89	3,165	3,148	93,076
Solano	41,647	1,263,357	91	935	1,306	25,711
Sonoma	361	8,795	1,681	44,331	468	20,156
Stanislaus	57,529	828,628	662	12,297	38,546	688,542
Sutter	27,457	491,720	761	22,373	3,568	56,823
Tehama	11,402	177,518	100	2,613	1,032	28,138
Trinity	39	1,210	51	1,833	150	2,667
Tulare	27,017	553,481	2,527	61,757	1,281	25,524
Tuolumne	579	5,055	7	156	425	7,447
Ventura	10,077	309,682	2,409	58,995	1,138	27,901
Yolo	49,530	1,236,884	201	5,123	515	12,365
Yuba	2,801	36,806	360	5,645	1,740	31,834
Totals	1,195,158	26,441,954	51,935	1,273,901	192,158	4,143,688

NOTE.—The acreage in buckwheat in 1910 was only 849, producing 14,681 bushels.

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TABLE XXIV.

Rye, Wheat, Kaffir Corn, and Milo Maize.

Counties	Rye		Wheat		Kaffir corn and Milo maize	
	Acres	Bushels	Acres	Bushels	Acres	Bushels
Alameda			1,075	21,535		10
Alpine			618	19,464		
Amador			293	5,169		
Butte			20,894	245,743	409	9,529
Calaveras			51	439	5	48
Colusa	77	987	11,168	221,549	2,598	48,418
Contra Costa			2,443	53,332		
Del Norte	2	112				
El Dorado	117	609	193	3,201		
Fresno	100	1,000	7,829	97,391	1,689	37,506
Glenn			17,541	232,911	162	4,972
Humboldt	14	181	134	3,370		
Imperial			125	2,559	9,789	213,781
Inyo			1,715	50,858		
Kern	30	1,500	12,924	139,375	2,813	45,828
Kings	5	100	8,684	141,978	3,931	95,010
Lake	7	140	2,563	46,131		
Lassen	526	6,018	9,938	153,863		
Los Angeles	100	745	6,760	59,866	106	2,145
Madera	100	1,400	39,468	370,499	343	4,948
Marin			57	1,155		
Mariposa	20	240	124	1,298		
Mendocino	3	61	3,906	59,195		
Merced	2,108	19,917	10,399	115,938	2,206	45,770
Modoc	406	6,633	9,362	195,924		
Mono	4	40	167	2,739		
Monterey			22,924	298,080	2	40
Napa			4,134	50,671	2	35
Nevada			95	1,279		
Orange			793	10,797	189	3,557
Placer			5,721	62,167	8	161
Plumas	704	5,250	766	10,313		
Riverside			11,817	159,434	44	580
Sacramento			10,704	103,728	2	43
San Benito	15	125	4,451	57,535		
San Bernardino			100	200	1,216	15,391
San Diego	6	50	7,268	82,012	17	282
San Francisco						
San Joaquin	1,843	17,476	24,786	310,587	2,968	32,786
San Luis Obispo			33,608	428,636	1	24
San Mateo			68	1,473		
Santa Barbara	3	30	2,300	27,892		
Santa Clara			376	10,198		
Santa Cruz			217	3,629		
Shasta			3,783	45,022		
Sierra	238	2,546	383	6,389		
Siskiyou	306	3,653	17,872	224,512		
Solano			20,924	391,753		
Sonoma			56	1,445		
Stanislaus	245	1,560	22,068	258,121	4,448	80,343
Sutter	40	250	14,537	176,750	352	7,750
Tehama			6,090	84,009		
Trinity	7	35	377	5,274		
Tulare	1	25	66,567	761,459	10,987	288,382
Tuolumne			277	5,373		
Ventura			2,896	67,366		
Yolo			13,452	237,393	21	710
Yuba			10,376	74,227		
Totals	7,027	70,683	478,217	6,203,206	44,308	938,049

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TABLE XXV.

Hay and Forage.

Counties	Hay and forage		Counties	Hay and forage	
	Acres	Tons		Acres	Tons
Alameda	80,735	113,534	Placer	16,034	13,404
Alpine	3,846	5,815	Plumas	30,152	34,038
Amador	14,449	17,961	Riverside	88,430	141,794
Butte	55,962	91,832	Sacramento	56,936	70,548
Calaveras	15,281	15,686	San Benito	64,064	84,380
Colusa	29,581	45,779	San Bernardino	42,608	76,359
Contra Costa	88,937	129,080	San Diego	82,049	86,559
Del Norte	3,052	10,131	San Francisco	103	150
El Dorado	12,115	11,685	San Joaquin	104,916	174,448
Fresno	95,265	214,659	San Luis Obispo	55,000	70,225
Glenn	25,143	37,594	San Mateo	19,060	28,982
Humboldt	30,018	119,613	Santa Barbara	50,070	70,146
Imperial	57,064	101,763	Santa Clara	83,553	127,006
Inyo	16,209	43,605	Santa Cruz	18,037	25,244
Kern	58,955	112,995	Shasta	35,341	46,578
Kings	57,749	158,306	Sierra	20,622	22,234
Lake	12,653	19,089	Siskiyou	57,976	100,113
Lassen	62,758	92,634	Solano	39,693	57,028
Los Angeles	154,048	316,541	Sonoma	62,351	87,949
Madera	17,606	29,978	Stanislaus	69,432	178,643
Marin	17,460	37,972	Sutter	32,744	57,017
Mariposa	6,521	6,049	Tehama	24,343	44,039
Mendocino	27,015	38,065	Trinity	5,350	8,929
Merced	68,917	173,335	Tulare	91,595	188,810
Modoc	75,479	118,906	Tuolumne	8,624	9,584
Mono	6,947	12,118	Ventura	51,546	78,926
Monterey	83,647	109,848	Yolo	45,859	104,733
Napa	26,061	39,331	Yuba	17,010	18,188
Nevada	8,725	9,497			
Orange	47,651	87,655	Totals	2,533,347	4,327,130

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TABLE XXVI.

Potatoes and Sweet Potatoes.

Counties	Potatoes, acreage		Sweet potatoes, acreage	
	1900	1910	1900	1910
Alameda	1,854	1,655	1	2
Alpine	14	22	----	----
Amador	108	125	----	1
Butte	152	171	2	21
Calaveras	65	147	2	----
Colusa	98	439	10	6
Contra Costa	1,583	12,687	9	----
Del Norte	97	69	1	----
El Dorado	71	113	----	----
Fresno	253	218	27	57
Glenn	36	24	4	1
Humboldt	1,173	1,108	1	----
Imperial	----	60	----	9
Inyo	167	326	1	----
Kern	672	339	22	31
Kings	46	194	9	19
Lake	141	182	7	----
Lassen	286	259	----	----
Los Angeles	2,799	4,140	218	342
Madera	12	75	1	2
Marin	724	435	----	----
Mariposa	76	76	----	----
Mendocino	586	616	3	----
Merced	364	246	780	2,114
Modoc	245	346	----	----
Mono	94	97	----	----
Monterey	2,374	5,393	1	----
Napa	149	530	2	----
Nevada	123	106	----	1
Orange	1,318	1,770	75	484
Placer	28	72	1	----
Plumas	114	100	----	----
Riverside	688	309	20	57
Sacramento	5,036	1,406	117	----
San Benito	147	205	----	----
San Bernardino	406	444	25	55
San Diego	355	374	22	27
San Francisco	336	87	----	2
San Joaquin	9,895	21,313	88	19
San Luis Obispo	406	955	6	3
San Mateo	500	971	5	----
Santa Barbara	826	1,524	7	28
Santa Clara	988	1,085	----	----
Santa Cruz	1,007	1,080	1	1
Shasta	305	243	17	16
Sierra	55	46	----	----
Siskiyou	478	655	2	----
Solano	114	311	----	----
Sonoma	3,260	2,279	2	----
Stanislaus	30	207	31	1,647
Sutter	222	218	48	41
Tehama	150	112	6	30
Trinity	146	143	----	----
Tulare	253	677	15	46
Tuolumne	107	114	----	2
Ventura	220	264	5	10
Yolo	206	402	12	31
Yuba	100	124	1	6
Totals	42,098	67,688	1,607	5,111

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TABLE XXVII.

Dry Edible Beans and Peas.

Counties	Dry beans		Dry peas	
	Acres	Bushels	Acres	Bushels
Alameda	86	2,933	215	5,794
Alpine		3		
Amador	3	31		
Butte	27	150		
Calaveras	8	238	2	16
Colusa	1,083	20,087	14	180
Contra Costa	2,298	65,748		
Del Norte		10	4	60
El Dorado	1	30		
Fresno	9	155	6	172
Glenn				
Humboldt	18	392	517	9,056
Imperial				
Inyo	70	1,055	1	10
Kern	26	648		
Kings	21	576	15	75
Lake				
Lassen				
Los Angeles	3,874	105,011	14	311
Madera	15	333		
Marin	1	8		
Mariposa	62	409		
Mendocino	5	44	17	345
Merced	523	5,839		
Modoc	88	1,567		4
Mono	5	133	11	63
Monterey	1,504	29,532	154	5,218
Napa	6	61		
Nevada	1	18		
Orange	21,186	402,951	55	605
Placer				
Plumas				
Riverside	50	192		
Sacramento	7,801	166,852	90	1,703
San Benito	59	677		
San Bernardino				
San Diego	3,492	45,661	12	17
San Francisco				
San Joaquin	13,954	352,157	362	10,050
San Luis Obispo	11,169	207,674	85	1,209
San Mateo	466	14,435	186	4,085
Santa Barbara	22,355	267,385	12	67
Santa Clara	706	8,810		2
Santa Cruz	577	12,645	2	15
Shasta	49	685	3	15
Sierra				
Siskiyou	10	272	1	10
Solano	2,553	65,755		
Sonoma	7	83		
Stanislaus	373	4,395	415	5,175
Sutter	2,766	76,201		
Tehama	14	302		
Trinity	4	275		
Tulare	21	267	10	60
Tuolumne	3	61		
Ventura	58,744	1,313,156	756	13,151
Yolo	1,835	51,204		
Yuba	59	1,112		
Totals	157,987	3,328,218	2,959	57,468

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TABLE XXVIII.

All Other Vegetables.

(Except Potatoes, Sweet Potatoes, Dry Peas, and Beans.)

Counties	Acres	Counties	Acres
Alameda	7,459	Placer	408
Alpine	14	Plumas	97
Amador	315	Riverside	1,225
Butte	513	Sacramento	6,367
Calaveras	278	San Benito	183
Colusa	160	San Bernardino	813
Contra Costa	3,650	San Diego	1,131
Del Norte	29	San Francisco	466
El Dorado	197	San Joaquin	6,728
Fresno	1,391	San Luis Obispo	950
Glenn	115	San Mateo	3,210
Humboldt	675	Santa Barbara	1,588
Imperial	3,672	Santa Clara	4,241
Inyo	240	Santa Cruz	648
Kern	589	Shasta	577
Kings	674	Sierra	35
Lake	353	Siskiyou	673
Lassen	184	Solano	650
Los Angeles	13,385	Sonoma	954
Madera	256	Stanislaus	1,621
Marin	117	Sutter	303
Mariposa	193	Tehama	292
Mendocino	594	Trinity	192
Merced	380	Tulare	2,550
Modoc	549	Tuolumne	232
Mono	36	Ventura	588
Monterey	658	Yolo	1,086
Napa	428	Yuba	235
Nevada	231		
Orange	3,785	Total	79,163

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TABLE XXIX.

Sugar Beets in 1900 and 1910, by Counties.

Counties	1900		1910	
	Acres	Tons	Acres	Tons
Alameda	3,680	44,974	2,516	29,201
Alpine				
Amador				
Butte			711	6,977
Calaveras			1	1
Colusa	566	5,820	211	1,824
Contra Costa	524	3,688	40	250
Del Norte				
El Dorado				
Fresno			228	1,196
Glenn			1,264	9,769
Humboldt				
Imperial				4
Inyo				
Kern				
Kings			504	1,304
Lake				
Lassen			2	10
Los Angeles	697	4,856	14,191	162,059
Madera				
Marin				
Mariposa				
Mendocino				
Merced			2	24
Modoc			9	137
Mono				
Monterey	10,333	112,367	9,900	126,397
Napa				
Nevada			39	78
Orange	1,143	7,853	10,275	133,612
Placer				
Plumas				
Riverside			4	33
Sacramento	101	502	7	105
San Benito	1,080	6,587	283	3,826
San Bernardino	1,132	4,077	4,121	42,928
San Diego			21	87
San Francisco				
San Joaquin	423	2,537	132	1,429
San Luis Obispo	285	1,384	284	5,993
San Mateo				
Santa Barbara	2,426	11,388	11,320	90,849
Santa Clara	4,214	12,373	1,135	8,180
Santa Cruz	2,759	41,553	312	3,511
Shasta				
Sierra				
Siskiyou			128	245
Solano	400	4,000	4	16
Sonoma	580	5,600		
Stanislaus				
Sutter			27	250
Tehama				
Trinity				
Tulare			1,239	9,447
Tuolumne				
Ventura	10,899	87,476	14,333	149,715
Yolo			5,714	55,734
Yuba				
Totals	41,242	356,535	78,957	845,191

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PART IV.

HORTICULTURE.

ORCHARDS AND VINEYARDS.

Orchard Fruits, Tropical Fruits, Olives and Olive Oil, Citrus Fruits, Raisins and Currants, Almeria Grapes, Almonds and Walnuts. Number of Trees and Vines by Counties.

CALIFORNIA FRUIT AND NUT CROPS 1886-1913.

California Orchards.

No statistics are extant recording the number of trees or the amount of fruit produced in the early days of fruit growing by the Missions at the period of their greatest prosperity. Inventories of the Mission properties were made at the time of their secularization in 1834. That of the Santa Ynez Mission recorded 987 fruit trees, valued at $1.00 each. San Fernando returned 1,600 fruit trees, valued at $1.50 each; San Gabriel 2,333 fruit trees upon which no valuation was placed, and San Diego returned 517 olive trees.

Outside of the Missions there were few attempts made at horticulture, and after they were broken up the early fruit industry began to decline. When General Fremont visited California in 1846, he wrote that "Little remains of the orchards that were kept in high cultivation at the Missions. Fertile valleys are overgrown with wild mustard; vineyards and olive orchards are decayed and neglected."

Some of the early settlers secured some of the Mission orchards, but the early plantings in the north were generally in the vicinity of the mines, and but little care was bestowed upon them, as fruit growing was not the science into which it has since developed.

Some of the Leading California Fruits.

In value of production among the orchard fruits, the peach ranks second. It has a wider range for possible growth than the apple. The nectarine is so similar to the peach as to be botanically classed as a variety of that fruit. It is even more difficult to grow than the apricot, and is produced almost entirely in California. The first large orchard of prunes was established in 1870 at San Jose.

There are two distinct branches of the apple industry in California; one is the growing of early varieties, like the Astrachan and Gravenstein, which are grown mostly in the Sacramento Valley and foothills; the other the production of winter apples. The greatest apple district of the State is the Pajaro Valley, including parts of Monterey and Santa Cruz counties, centering at Watsonville.

California has a monopoly of apricot growing, and in canned and dried forms this is one of the leading fruits exported.

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The cherry is one of the lesser orchard fruits of California, but the peach is the greatest orchard fruit of the deciduous class produced in the State. Magnificent nectarines are grown, but in comparatively small quantities.

The production of pears declined for many years, owing to the ravages of the pear blight, but is now recovering from the setback the industry received. The varieties grown are comparatively few, and the Bartlett is the chief.

Prunes and plums are largely grown in certain counties, and the production of French prunes has developed into one of the largest fruit industries in the State.

The olive is another of the old Mission fruits which has come to the front again within the last few years. It thrives on a great variety of soils.

Tropical and Subtropical Fruits.

The subtropical fruits and nuts of the United States comprise almonds, bananas, citrons, cocoanuts, dates, figs, guavas, kaki (or persimmons), lemons, limes, English or Persian walnut (or Madeira nut), olives, oranges, pienapples, pomeloes, pomegranates, and pecans. The two leading states producing subtropical fruits are California and Florida.

FIGS.

Professor Wickson well describes the fig as perhaps the grandest fruit tree of California. California is the only state that produces figs in commercial quantities, and Fresno County takes the lead in the production of this fruit. The large and universal demand for figs is proved by the quantity of Smyrna figs produced in Asia Minor, which amounts to about 40,320,000 pounds annually.

The white Adriatic fig was extensively planted from 1884 to 1890, and in 1887 the Smyrna fig was introduced by George C. Roeding, of Fresno, and since this time the fig industry has kept increasing until it has become one of the most important fruit products of the State.

DATES.

During the last year or two dates have been grown in an experimental way, but the success of some of the tests has encouraged larger cultivation. While date trees can be grown wherever the orange is grown, they will not properly mature in any except the hottest and driest portions of the State. According to Dr. J. Eliot Coit, pomologist, California Experiment Stations, the requisite conditions may be found in many places throughout the Imperial, Coachella, and Colorado valleys, and the country around Palo Verde and Blythe, Riverside County. At other places in the State, such as the vicinity of Riverside, Redlands, Fresno, and Oroville, early dates might be grown in a small way for home consumption, or be sold in the fresh, uncured condition. While the new industry has a very promising future, it should be clearly borne in mind that date culture is a new industry, requiring experience and unusual skill on the part of the grower, and it must carried out in regions having an extremely hot summer climate, and it must be remembered that to bring date palms into bearing costs very much more per acre than to grow any other orchard crop.

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While of many varieties, dates may practically be classed as of three sorts—soft, dry, and semi-dry. The Deglet Noor is probably the best of the latter class. They are grown principally at Mecca, in the Coachella Valley, in Riverside County. There are about 1,200 palms shortly coming into bearing, and several thousand small ones, and a great number are now being planted. The quantity of edible dates sold last year was about 1,200 pounds. The production of dates in 1913 is estimated at 7,500 pounds. The Coachella Valley, it is claimed, will produce finer dates than the Imperial or Colorado valleys, owing to the humidity being less than in the other regions. Fruit of good quality for home use can undoubtedly be produced in a large part of the San Joaquin Valley, some parts of the Sacramento Valley, and a warm coastal region, such as that around San Diego. It is a question of introducing varieties that are at home in such climates, and to this work the Bureau of Plant Industry is devoting a great deal of energy. In 1913 18,145,341 pounds of dates were imported, valued at $363,734, the duty being one cent a pound.

Orchard Fruits, Grapes, Tropical Fruits, Small Fruits, and Nuts—1909-1910.

The acreage in fruits has never been ascertained. In comparing one year with another the number of trees or vines of bearing age is on the whole a better index of the general changes or tendencies than the quantity of product, which may vary largely, owing to favorable or unfavorable climatic conditions.

The total quantity of orchard fruits produced in 1909 was 31,502,000 bushels, valued at $18,359,000. Plums and prunes, peaches and nectarines, apples and apricots are the most important of the orchard fruits.

The total value of the tropical fruits produced in 1909 was $16,752,000, the value of oranges representing more than three fourths of the total, and the value of lemons being next in importance.

The production of grapes in 1909 amounted to 1,979,687,000 pounds, valued at $10,847,000, and the production of nuts was 28,378,000 pounds, valued at $2,960,000. Most of the nuts were Persian or English walnuts and almonds.

Small Fruits—1899-1909.

Strawberries are by far the most important of the small fruits raised in California, with raspberries and loganberries, and blackberries and dewberries ranking second and third respectively.

The acreage of small fruits in 1909 was 9,687 and in 1899 it was 6,281, an increase of 54.2 per cent. The production in 1909 was 26,824,000 quarts, as compared with 14,582,000 quarts in 1899, and the value was $1,789,000 in 1909, as compared with $911,000 in 1899.

The Production of Fruit in Other States.*

Definite conclusions as to the relative importance of different states can not always be drawn from the number of trees of bearing age, since the trees in some states are much more prolific than in others, nor does the production of any given year furnish an altogether satisfactory

*For the states having the largest number of different fruit and nut trees, see Report for 1912, page 117.

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index, since weather conditions may be favorable in one part of the country and unfavorable in another.

The leading states in the value of fruit produced are California and New York. The three states containing the largest number of orchard trees are:

State	Bearing trees	Non-bearing trees	Total
California	22,485,195	8,410,062	30,895,257
Missouri	23,128,107	5,748,159	28,876,266
New York	17,625,093	7,363,614	24,988,707

Although fruits are grown with few exceptions in every county in the State, certain counties take the lead in producing the principal fruits. The following is a brief summary of some of them:

PRINCIPAL ORCHARD FRUITS BY COUNTIES.

Best Location for the Leading Fruit Crops.

The following summary is both interesting and valuable, as the figures show which districts are the best for raising the different varieties of fruit. In the earlier years many failures were experienced by growers, owing to the soil or climate not being suitable for the trees they had planted.

According to the number of trees in bearing, the following six counties rank in the order named in the production of various fruits:

Apples.

County	Number of bearing trees	County	Number of bearing trees
Santa Cruz	647,136	Santa Clara	102,841
Sonoma	386,740	Los Angeles	101,433
Monterey	290,404	Humboldt	73,010

Apricots.

Santa Clara	783,585	Ventura	219,836
Solano	310,262	Fresno	186,823
Alameda	270,461	Yolo	117,228

Cherries.

Santa Clara	173,002	Sonoma	43,927
Alameda	89,284	Placer	31,209
Solano	53,923	San Joaquin	21,590

Peaches and Nectarines.

Fresno	2,277,314	Placer	683,824
Kings	777,697	Santa Clara	437,677
Tulare	714,494	Solano	341,266

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Pears.*

County	Number of bearing trees	County	Number of bearing trees
Solano	182,194	Santa Clara	142,550
Sacramento	161,094	Sonoma	109,965
Placer	142,999	Alameda	70,382

Prunes and Plums.

Santa Clara	3,387,455	Placer	279,766
Sonoma	569,232	Tulare	264,337
Napa	299,613	Sacramento	206,553

Total Number of Bearing Orchard Trees.

The following twelve counties have the largest number of orchard fruit trees in bearing, in the order named:

County	Number of bearing trees	County	Number of bearing trees
Santa Clara	5,043,766	Kings	1,048,506
Fresno	2,579,859	Santa Cruz	875,642
Sonoma	1,364,105	Alameda	627,824
Solano	1,357,911	Sacramento	506,961
Placer	1,190,074	Napa	497,391
Tulare	1,059,830	Butte	452,302

TROPICAL FRUITS.

Figs.

County	Number of bearing trees	County	Number of bearing trees
Fresno	120,124	Yolo	10,476
Stanislaus	37,676	Merced	9,837
Tulare	15,750	Butte	9,518

Olives.

San Diego	109,871	Butte	73,453
Los Angeles	84,934	Fresno	72,788
Riverside	80,572	Orange	67,046

Lemons.

Los Angeles	219,149	Riverside	115,020
San Diego	195,318	Ventura	95,018
San Bernardino	157,731	Orange	46,954

Oranges.

San Bernardino	1,951,254	Tulare	801,151
Los Angeles	1,674,695	Orange	478,272
Riverside	1,021,957	Butte	147,412

*Owing to the ravages of the pear blight, the number of bearing trees decreased from 2,512,890 in 1900 to 1,410,905 in 1910.

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Pomeloes.

County	Number of bearing trees	County	Number of bearing trees
San Bernardino	13,134	San Diego	5,764
Tulare	8,114	Riverside	4,477
Los Angeles	6,853	Yolo	1,325

Total Number of Bearing Trees of Tropical Fruit.

San Bernardino	2,153,501	Ventura	253,754
Riverside	1,224,217	Butte	235,442
Los Angeles	1,194,402	Santa Barbara	99,023
Tulare	872,657	Sacramento	84,863
San Diego	425,260	Kern	82,888
Fresno	291,754	Placer	59,906

GRAPE VINES.

County	Number of bearing vines	County	Number of bearing vines
Fresno	*†40,687,207	Santa Barbara	†5,987,127
Sonoma	†17,939,972	Santa Clara	†5,584,480
San Joaquin	†13,371,794	Los Angeles	*†4,923,877
Napa	†8,595,338	Kings	*†4,538,732
Sacramento	†7,627,510	Contra Costa	†2,972,130
Tulare	*†7,227,491	Yolo	*†2,568,019

*Raisin grapes. †Wine grapes. All produce table grapes.

NUTS.

Almonds.

County	Number of bearing trees	County	Number of bearing trees
Contra Costa	209,056	Butte	84,069
Yolo	149,019	Los Angeles	76,949
Solano	98,276	Sacramento	66,372
San Joaquin	97,024	Sutter	61,572

Walnuts.

Los Angeles	281,837	Santa Barbara	96,776
Orange	276,842	Santa Clara	19,070
Ventura	98,622	Sonoma	11,955

Pecans.

San Diego	1,080	Los Angeles	313
Napa	996	Ventura	301
Kern	563	Santa Clara	136

Total Nut Trees in Bearing.

Los Angeles	359,349	Solano	100,239
Orange	278,879	San Joaquin	99,499
Contra Costa	215,249	Santa Barbara	97,091
Yolo	150,822	Sacramento	67,156
Ventura	110,984	Sutter	62,289

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SMALL FRUITS.

Strawberries.

County	Number of acres	County	Number of acres
Los Angeles	1,380	Placer	433
Santa Cruz	489	Monterey	263
Santa Clara	460	Fresno	148
Sacramento	450	Sonoma	103

Blackberries.

Sonoma	980	Fresno	91
Los Angeles	280	Tulare	70
Santa Clara	228	San Bernardino	68
Santa Cruz	116	Placer	62

Total Small Fruits.

Los Angeles	1,975	Monterey	407
Sonoma	1,471	Alameda	401
Santa Clara	1,011	Fresno	310
Santa Cruz	744	Orange	205
Placer	582	Stanislaus	161
Sacramento	554	Butte	148

Acreage and Production of Small Fruits, 1899-1909.

	Number of farms, 1909	Acres		Quarts, 1909	Value, 1909
		1899	1909		
Strawberries	2,282	2,418	4,585	15,694,326	$1,149,475
Blackberries and dewberries	3,190	1,960	2,576	4,898,524	282,383
Raspberries and loganberries	2,524	987	1,992	5,222,117	304,169
Currants	364	724	407	852,378	43,508
Gooseberries	343	133	74	145,119	9,086
Cranberries	12	-------	53	10,656	443
Other berries	1	59	*	1,000	150
Totals	-------	6,281	9,687	26,824,120	$1,789,214

*Less than 1 acre.

Of the small fruits strawberries lead, both in acreage and production, California being the largest producer in the West, the greatest production being in Los Angeles County. Currants are only grown in about eight states, California being one of them; gooseberries are not much grown anywhere in the United States, Indiana being the largest producer.

Cranberries only acquired commercial importance fifty or sixty years ago. They are principally grown in Massachusetts, New Jersey, and Wisconsin, and are not a success in California. There is a wild cranberry or huckleberry grown in the redwood regions of the State, but not like the hog cranberry of the East. One year 2,000 boxes were picked on the hills of west Sonoma County, and used for canning and pies; they are said to be juicy and delicious.

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Number of Trees and Vines in 1910.

Crop.	Bearing trees in 1910	Non-bearing trees in 1910	Total	Quantity, bushels, 1909	Value, 1909
Orchard Fruits.					
Peaches and nectarines	7,829,011	4,409,562	12,238,573	9,267,118	$4,573,775
Plums and prunes	7,168,705	1,599,939	8,768,644	9,317,979	5,473,539
Apricots	2,992,453	581,524	3,573,977	4,066,823	2,768,921
Apples	2,482,762	1,054,107	3,536,869	6,335,073	2,901,662
Pears	1,410,905	398,093	1,808,998	1,928,097	1,660,963
Cherries	522,304	300,063	822,367	501,013	951,624
Quinces	76,979	65,471	142,450	32,638	26,266
Mulberries	2,076	1,308	3,330	52,766	2,147
Totals	22,485,195	8,410,062	30,895,257	31,501,507	$18,358,897
Tropical Fruits.					
Oranges	6,615,805	2,093,410	8,709,215	[1]14,436,180	$12,951,505
Lemons	941,293	379,676	1,320,969	[1]2,756,221	2,976,571
Pomeloes (grapefruit)	43,424	25,589	69,013	[1]122,515	143,180
Mandarines	351	23	374	[1]555	607
Tangerines	3,637	34	3,671	[1]3,581	4,188
Total citrus fruits	7,604,510	2,498,732	10,103,242	[1]15,319,052	$16,076,051
Olives	836,347	121,659	958,006	[2]16,132,412	$401,277
Figs	269,001	214,527	483,528	[2]22,990,353	260,153
Guaves	7,031	443	7,474	[2]95,053	4,018
Loquats	3,711	1,011	4,722	[1]4,516	5,830
Pomegranates	1,771	2,745	4,516	[2]30,075	968
Japanese persimmons	3,274	8,801	12,075	[3]2,696	3,344
Dates	325	19,552	19,877	[3]3,332	418
Unclassified	35	200			
Totals	[4]8,726,005	[4]2,867,670	11,593,675		[4]$16,752,101

[1]Boxes. [2]Pounds. [3]Bushels. [4]Includes limes, bananas, and citron.

Grapes.

	Bearing	Non-bearing	Total	Quantity, pounds	Value
Grapes	144,097,670	39,526,319	183,623,989	1,979,686,525	$10,846,812

Nuts.

	Bearing trees in 1910	Non-bearing trees in 1910	Total	Quantity, pounds, 1909	Value 1909
Almonds	1,166,730	365,961	1,532,691	6,692,513	$700,304
Persian or English walnuts	853,237	546,804	1,400,041	21,432,266	2,247,193
Black walnuts	6,582	7,905	14,487	159,374	2,562
Pecans	4,226	2,793	7,019	44,955	4,632
Chestnuts	1,763	2,948	4,711	37,153	3,474
Franquette	408	617	1,025	4,550	910
Unclassified	1,356				
Totals	*2,034,302	*931,933	2,966,235	*28,378,115	$2,959,845

*Including Oou-shue, Chili nuts, Brazil nuts, Japanese chestnuts, beechnuts, hazel nuts, French nuts, Japanese walnuts, pistachio, butternuts, mazette, hickory nuts, filberts, and other nuts.

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Summary.

	Bearing trees	Non-bearing trees	Total
Orchard fruits	22,485,195	8,410,062	30,895,257
Tropical fruits—Citrus	7,604,510	2,498,732	10,103,242
Other tropical fruits	1,121,495	368,938	1,490,433
Total tropical fruits	8,726,005	2,867,670	11,593,675
Nuts	2,034,302	931,933	2,966,235
Total trees	33,245,502	12,209,665	45,455,167
Grape vines	144,097,670	39,526,319	183,623,989

The following table shows the quantities of the more advanced products manufactured by farmers from orchard and tropical fruits and grapes:

Product	Number of farms	Unit	Quantity, 1899	Produced, 1909
Cider	481	gallons	75,443	118,456
Vinegar	973	gallons	199,678	244,683
Wine and grape juice	2,163	gallons	5,492,216	16,005,519
Olive oil	78	gallons	8,445	95,955
Raisins and dried grapes	4,551	pounds	117,935,727	169,210,679
Other dried fruit	8,373	pounds		189,495,705

NOTE.—These figures do not include wine, grape juice, and vinegar made in regular wineries, nor olive oil made in regular factories.

Leading Counties in Fruits and Nuts.
(Value of one million and upward.)

County	Value	County	Value
Los Angeles	$6,731,000	Sonoma	$2,034,000
San Bernardino	5,357,000	Ventura	1,795,000
Fresno	5,279,000	Santa Cruz	1,656,000
Santa Clara	4,234,000	Solano	1,495,000
Riverside	2,393,000	Placer	1,318,000
Orange	2,497,000	San Joaquin	1,307,000
Sacramento	2,265,000	Kings	1,219,000
Tulare	2,053,000		

FRESH DECIDUOUS FRUITS, 1903-1912.

Statement Showing Number of Cars of Each Variety Shipped, 1903-1912.

Year	Apricots	Cherries	Grapes	Peaches	Pears	Plums	Apples	Miscellaneous	Totals
1903	241	211	1,804	1,857	1,720	1,145	671	22	7,671
1904	97	209	1,451	559	2,186	1,053	43	28	5,626
1905	279	79	1,602	1,946	1,013	1,391	1,913	16	8,239
1906	16	150	2,052	584	1,513	1,220	748	22	6,305
1907	71	133	3,460	699	1,039	1,039	1,067	18	7,526
1908	232	208	3,819	1,980	2,702	1,763	2,201	15	12,920
1909	210	250	5,880	2,599	2,638	1,526	2,158	19	15,280
1910	290	250	4,948	2,518	2,361	1,552	2,136	17	14,072
1911	215	216	6,374	2,027	2,325	1,366	----	16	12,539
1912	196	244	6,357	1,621	3,135	1,776	----	15	13,344
1913	158	231	6,363	2,359	2,496	1,706	----	19	13,332

In no case do the above figures cover the entire shipment of apples, as they continue to be shipped long after the deciduous fruit season is closed.

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Total Value of All Crops, by Counties.

(Value of four million dollars and upward.)

County	Value	County	Value
Los Angeles	$14,720,000	Tulare	$5,353,000
San Joaquin	9,082,000	Riverside	5,133,000
Fresno	7,991,000	Sacramento	4,720,000
Santa Clara	6,968,000	Sonoma	4,451,000
San Bernardino	6,818,000	Monterey	4,325,000
Ventura	6,751,000	Alameda	4,276,000
Orange	6,176,000	Contra Costa	4,032,000

NOTE.—These figures are for the value of crops only, and do not include wine and other products.

OLIVES AND OLIVE OIL.

The olive is a native of Syria, and lives to a great age. The culture of the olive for commercial purposes forms an industry that should be regarded as one of the safest in the State, and under favorable conditions one of the most profitable of all branches of horticulture. Commercial conditions under the pure food law have made it almost imperative that with few exceptions the manufacture of olive oil, as with dairy products, be conducted by central plants on a considerable scale, rather than by numerous small outfits, connected with the orchards themselves.

As a result, especially if the industry be coupled with that of pickling olives, the manufacturer, on account of the larger output and the possibility of handling at a greater profit his highest grade of olives in the form of pickles, can afford to pay the grower a price for his crop that will return a fair profit, a condition which can not generally be said to exist where operations are conducted on a small scale. In the face of competition of so cheap an oil as cottonseed, its chief competitor as an edible oil, and the high cost of producing strictly pure, high-grade olive oil, the manufacturer must use the most modern machinery, which is beyond the means of the ordinary grower. That there is a ready market in this country for olive oil is proved by the quantity and value of foreign oil and olives imported.

In the United States the production is confined largely to California. Trees from seed planted in 1769 at San Diego, California, are still producing fruit.

There were very few new orchards planted in olive trees during the years 1905–1909, consequently the production of olive oil during the last few years has changed but slightly. The few orchards that are coming into bearing are mostly varieties that are used for pickling purposes, and the production of pickling olives is increasing considerably from year to year. Since 1909 a large area has been planted. The production of olives during the last few years has increased by improved methods of irrigation and fertilization, and the industry is growing in importance, and new planting is on a considerable scale. The production is about equally divided between southern California and the territory north of the Tehachapi. In the last ten years the harvests in California have been very regular, alternating generally heavy and light, although the last few years have been very steady as to output, due to the increased care and attention to orchards.

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Not more than 35 gallons of oil are produced from a ton of olives, although some manufacturers, who have heavy presses, claim to obtain 40 gallons of oil to the ton. It takes about 5½ pounds of olives to make one gallon of pickles. The output of pickled olives is increasing much more rapidly than the production of olive oil, as California manufacturers can not compete with foreign oil as to price.

The leading varieties now being planted in California are the Mission and Manzanillo, all other olives generally being treated as oil olives, as they are unfit for pickles.

Olive oil was first made in California in Santa Barbara in 1872. In 1900, six counties in the San Joaquin and Sacramento valleys produced nearly 75 per cent of the crop in the whole State.

It is estimated that at the present time there is a total of 18,000 acres in olives, producing in 1911 about 8,000 tons of oil olives, and 4,000 tons for pickling. Four years ago the average net income was only $17 an acre, in 1912 the average had increased to $36.88 an acre. In 1908 the olive industry represented capital invested amounting to $4,500,000, increased in 1912 to $7,500,000. Formerly the by-products were more or less wasted; now oil, described as "mechanical oil," is extracted from the pomace and used to a large extent by soap and other factories. The average yield per acre in California is about 1¼ tons, and the average price received by the growers for the three years, 1909–1912, for oil olives on the tree was $22 per ton. Forty per cent of the olives produced are pickling olives, and 60 per cent oil olives. The average price received by growers 1909 to 1912 for pickling olives on trees was $62 per ton. The net average receipts by growers for pickling olives was $53.50 per ton, and the net average receipts for both oil and pickling olives $36.88 per acre. The amount paid to growers in 1911, for approximately 12,000 tons, was $442,000; of this tonnage 4,000 were pickles, representing 1,200,000 gallons, and 8,000 tons of olive oil, representing 280,000 gallons of oil.

Compared with 1911, the output of olive oil in 1912 was very small, being about one third of that for the previous year, and the pickled olives about one half to one third, and in one or two counties even less. The price for oil olives during the last two years increased greatly, and in the southern part of the State has ranged from $45 to $50, and sometimes a few dollars higher per ton, while in pickling olives the price has ranged from $75 to $175 per ton, the higher prices being for the very best quality and the largest size. The price for oil olives on the trees in 1912 was from $25 to $35 per ton, pickling olives $50 to $60 on the tree and upward, depending on the quality of the fruit. Very fancy fruit commands prices of $80, $90 and $100 on the trees.

In 1913 it is estimated that there were about 750,000 gallons of ripe olives, equal to 125,000 cases of 24 quart cans each. The quantity of olive oil manufactured was about 150,000 gallons. The quantity of olives imported was 2,946,076 gallons, compared with 5,076,857 gallons in 1912. The quantity of edible olive oil imported increased from 4,836,515 gallons in 1912 to 5,221,001 in 1913.

The largest factory for producing olive oil and pickled olives is in Los Angeles County. The leading counties in the production of olives are: San Diego, Los Angeles, Riverside, and Orange in the south, and Butte and Fresno in central California.

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THE CITRUS FRUIT INDUSTRY.

The orange was first cultivated in the United States in Florida and Louisiana, and subsequently in California. The varieties are very numerous, but by far the most popular and widely-known variety is the Washington Navel. It was first brought into this country from Bahia, Brazil, in 1870, by William Saunders, of the United States Department of Agriculture, and was named by him "Bahia."

Twelve trees only were imported, two of which were obtained by Mrs. L. C. Tibbetts of Riverside, in 1873, and as buds were taken from these trees and the cultivation of it spread through the district, it became also known as the Riverside Navel, to distinguish it from a similar, though inferior, variety which had been introduced in 1874 from Australia, and was at one time cultivated on a considerable scale in Orange County. There were many other types growing in southern California at that time, most of which were descended from trees planted around the Missions by the Spanish Fathers.

The variety was named by Californians the Washington Navel, in honor of the capital from which it was received, but its formal title remains as "Bahia."

Three fourths of the oranges in California are now of the Washington variety, the remainder comprising the Valencia Late as the most important variety, with fewer of the St. Michael, Mediterranean Sweet, Thompsons, Ruby, Blood, Jaffa, Seedlings, and Tangerines.

The two species of St. Michael, grown in the Azores, are the "San Miguel" and "Selecta" (a native of Cape Verde Islands). The former ripens from December to June, and the latter from June till September.

The cultivation of the Jaffa orange in Palestine has largely increased in recent years; the orange groves in the Jaffa district now cover upward of 13,000 acres, and the Alexandretta district about 7,000 acres.

The enormous consumption of oranges is shown by the exports from the leading countries that produce them.

Year	Spain, pounds	Italy, pounds	*Jaffa, boxes	Japan, pounds	Porto Rico, boxes	Cuba, pounds
1907	1,084,613,282	278,791,700	630,512	25,358,276	----------	1,509,536
1908	1,027,871,410	266,838,200	675,926	20,414,803	308,990	1,881,011
1909	1,031,865,629	244,488,600	744,463	22,245,897	204,239	2,376,635
1910	1,051,764,067	265,498,285	853,767	18,899,371	296,058	2,653,520
1911	869,725,553	282,945,860	869,859	14,158,559	313,461	3,609,817

*The Jaffa box contains about 70 pounds of fruit; the Porto Rican box about 80 pounds.

In addition to the above, the exports from the British West Indies to the United States alone is on a very large scale, as the following figures show:

Year	Pounds
1907	5,988,107
1908	11,789,081
1909	758,998
1910	469,033
1911	4,108,651
1912	3,561,123

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The total shipments from the countries mentioned above are equivalent to approximately 21,000,000 boxes of California capacity. California, therefore, provides about forty per cent of the total orange supply of the world and three fourths of the total production of the United States. Spain produces about the same quantity of oranges as California.*

Japan is now growing navel oranges in considerable quantities. In 1911 there were 1,067,659 trees, and planting is rapidly extending. Three years ago these oranges were seldom seen in the market of northern Japan; now they are to be had in every part of Japan at 18 to 30 cents a dozen, according to quality. The fruit is good in quality, thin skinned, juicy, and sweet. They have been recently exported in considerable quantities to Australia, where, on account of their cheapness, they have successfuly competed with the California navel oranges.

Every one can remember when all domestic oranges were called either California or Florida oranges. Now all this is changed, and there is not only a considerable number of well-known varieties, but a large number of different brands.

It was not until 1886, however, that the first regular orchard was planted for the purpose of profit, and since then the progress of the industry has been rapid. In 1890 California had 1,757 citrons, 11,495 guavas, 2,007 limes, and 29 acres with 145,000 pineapple plants in bearing, all in San Diego County. In 1900 the numbers were: 4,780 citrons, 7,056 guavas, 1,815 pineapples, and 2,690 Japanese persimmons. Pineapples and citrons are no longer grown on a commercial scale in this State.

The citrus fruit industry has reached its present development in southern California, which is made up largely of San Bernardino, San Gabriel, and San Fernando valleys, and in the coast region in Orange and Los Angeles counties. There are smaller but less favorable regions in Santa Barbara and Ventura counties, close to the mountains, and in San Diego County oranges have also been cultivated from an early period, and as far as Butte County in the north, and Tulare, Fresno, and Kern counties in central California.

The orange crop of northern California matures from four to six weeks earlier than it does in the southern part of the State, notwithstanding the fact that it is from 200 to 500 miles farther north. This unusual condition is due to the topography of the Pacific coast. The two large San Joaquin and Sacramento valleys in central and northern California lie between two great mountain ranges extending north and south. The Coast Range mountains shut off the modifying influences of the sea, causing relatively higher night temperatures during the summer months than prevail in the southern part of the State.

In southern California San Bernardino is the largest producer of oranges, with 1,951,254 bearing trees; Los Angeles has 1,674,695, Riverside 1,021,957, and Orange County 478,272. In northern and central California, Tulare leads with 801,151, Butte 147,412, Fresno 85,781, Kern 80,940, and Sacramento 46,256.

The shipments from northern and central California for the season of 1913–14, up to the first week in April, shows a considerable increase: Butte County 398 cars, Tulare County 4,636 cars of oranges, compared

*See report of the Citrus Protective League to House of Representatives, January, 1913.

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with about 1,800 in 1912–13, and 30 cars of lemons, to which may be added 950 cars of Valencias and 10 cars of lemons not yet shipped, and from Fresno County about 200 cars.

Pomeloes are also grown to a considerable extent, the two leading counties being San Bernardino with 13,134 bearing trees, and Tulare with 8,114.

California Fruit Growers' Exchange.

Some idea of the size and value of the crop, and of the immense benefit derived by growers by a well-organized association, is shown by the results obtained by the California Fruit Growers' Exchange, the largest and most successful of all the co-operative institutions formed by the fruit growers. The following tabular statement shows the total number of boxes shipped each year, the net amount received, the average f. o. b. California price per box, and the loss, if any, from failure to collect or in the transmission of funds:

Year	Boxes shipped	F. O. B. returns	Average per box	Losses
1904–05	5,188,511	$7,124,377 00	$1 37	$458 04
1905–06	4,705,515	9,936,497 00	2 11	----------
1906–07	6,149,708	12,268,752 00	2 00	----------
1907–08	6,628,644	11,753,544 00	1 77	81 85
1908–09	8,710,828	13,958,990 00	1 60	4,297 57
1909–10	7,578,801	14,831,975 00	1 96	732 32
1910–11	10,842,790	20,708,355 21	1 91	----------
1911–12	9,232,357	17,235,822 98	1 87	----------
1912–13	4,940,068	13,640,091 32	2 74	390 71
Totals	63,977,222	$122,458,404 51	$1 96	$5,960 49

Over $100,000,000 has been brought to California by the Exchange in the eight years, with a loss from failure to collect or in the transmission of funds of less than $6,000.

The orange industry in California represents an investment of about $150,000,000.

The average annual yield on 274 selected orange groves from 1906 to 1911 was 157.6 boxes per acre. The average cost of labor and material in growing the oranges in these orchards was $136.06 per acre, of which $52.82 was for labor.

A careful estimate recently made places the production of oranges in California at 129 to 191 boxes to the acre, but there is considerable difference in the crop in various orchards. A recent publication of the United States Department of Agriculture places the average for the last five years at 157.6 boxes to the acre, and the cost of oranges delivered in the markets of the United States exactly 18 cents a dozen.

Increase in the California Citrus Crop in Ten Years.

From the figures of the Bureau of the Census, it appears that the orange crop of California made a gain of 145.4 per cent during the decade between 1899 and 1909, increasing from 5,882,000 boxes in 1899 to 14,436,000 boxes in 1909. During the same period of time, the number of trees of bearing are increased from 5,649,000 to 6,616,000, or 17.1 per cent. In 1910 there were also 2,093,000 trees of non-bearing age. In 1909, the average product per tree was 2.2 boxes. With respect

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to quantity of fruit, San Bernardino County rose from third rank in 1899 to first in 1909. In 1899 Los Angeles County ranked first and Riverside County second.

The value of the oranges produced in 1909 was $12,952,000, an average of 90 cents per box.

The increase in the shipments of oranges from California in periods of five years, from 1886 to 1912, shows a most remarkable and steady growth.

Period	Per cent increase
1886-87—1891-92	100
1891-92—1896-97	36
1896-97—1901-02	194
1901-02—1906-07	52
1906-07—1911-12	34

The great damage that was inflicted on California orange growers by the heavy frost which occurred the last week in December, 1911, and the first week in January, 1912, is shown in a striking manner by the returns of the California Fruit Growers' Exchange, the shipments being only 4,940,068 carloads, compared with 9,232,357 the previous season. This large decrease was in some measure made up for by better prices, the average being $2.74 per box, against $1.87 for the previous year. The total receipts were only $13,640,000, compared with $17,235,000, or a loss of over $3,595,000.

LEMONS.

Although lemons have been grown in California for half a century, it is only during the last twenty years that they have risen to considerable commercial importance. The lemon is less hardy than the orange and comprises from 10 to 15 per cent of the citrus crop.

The principal varieties of lemons grown in California are the Eureka, a native of California, grown by C. R. Workman of Los Angeles from seed imported in 1872; the Lisbon, imported from Portugal, first grown at Riverside; Genoa, imported from Genoa by Don José Rubio of Los Angeles; Villa Franca, imported from Europe; Bonnie Brae, originated with H. M. Higgins of San Diego County, and are grown mostly in that county.

California Lemon Crop, 1899-1909.

The lemon crop increased from 874,000 boxes in 1899 to 2,716,000 boxes in 1909, a gain of 1,842,000 boxes, or 210.7 per cent, although for the same period the reported number of trees of bearing age decreased from 1,493,000 to 927,000, or 38 per cent. The number of trees of non-bearing age in 1910 was 377,000. The number of boxes per tree in 1909 was 2.9; in 1899, it was just under three fifths of one box. The value in 1909 was $2,926,000, or $1.08 per box.

The California lemon industry has been developed by small landowners. There are a few groves which contain from 150 to 1,000 acres, but the average grove contains less than 10 acres. In San Diego County 100 growers own approximately 1,000 acres. In the San Dimas district 300 growers own 1,180 acres; in the Pomona district 75 growers own 344

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acres; in the Santa Barbara district 70 growers own 407 acres. The newer planting of the last three years usually contain 5, 10 or 15 acres and seldom more than 20 acres. In a recent survey, including every important district, 11,185 acres were owned by 1,179 growers; 39 growers owned between 20 and 50 acres; 6 growers, 50 to 100 acres; 8 growers, 100 to 250 acres; 1 grower, 250 to 500 acres; and 2 growers owned more than 500 acres.

The average annual yield on 143 lemon orchards from 1906 to 1911 was 196.2 boxes per acre. The average value of land and water adapted to lemon culture in California is $450 per acre, and the cost of bringing a grove into bearing at six years of age, varies from $800 to $1,500 per acre, a fair average being $1,000. In 1909 there were approximately 22,000 acres of lemons in California; in 1912 there were 31,478 acres.

Practically all imported lemons come from Sicily, an Italian island, and the province of Calabria, where the production is very large, the exports being estimated in 1911 as 57,030,543 pounds, or the equivalent of about 23,763 California carloads.

Enormous quantities of lemons are used in making citrate of lime, which is made from the juice and pulp of the lemon; the quantity produced in 1910 was 21,000 pipes of 672 pounds each. It requires approximately 100,000 lemons to make a pipe of citrate, or the equivalent of a California carload of fruit, so the fruit so converted would amount to 504,000,000 pounds. The estimated production of lemon oil in Sicily in 1910 was 700 tons.

Pomelo or Grapefruit.

The pomelo or grapefruit was formerly almost exclusively grown in Florida, but its cultivation has increased in recent years, and considerable quantities are produced in Riverside, Tulare, San Diego, and other citrus counties. The leading varieties are the Nectar, Imperial, Marsh, Seedless, and Triumph.

Citron of Commerce.

The citron of commerce was grown by the Missions in the early days, but now is cultivated only to a very limited extent in Riverside County. At one time there was a grove of 21 acres in Los Angeles County, but it was neglected and five years ago was replaced by oranges, avocado, and other trees.

THE FLORIDA CITRUS CROP.

Florida is at present the only competitor with California in the United States in the production of oranges and lemons, although in recent years citrus fruits are being produced on a small scale in Arizona, Louisiana, and Texas.

Florida Citrus Trees in Bearing, 1890, 1900, and 1910.

	1890	1900	1910
Orange	2,725,272	2,552,542	2,766,618
Lemon	85,052	22,691	11,740
Lime	17,089	41,741	45,369
Pomelo	3,135	117,336	656,213
Citron	2,480	----------	23,234

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Florida first took the lead in the production of citrus fruits in this country, but "the great freeze" of December, 1894, and February, 1895, when the temperature at some places fell to 14 and 18 degrees, was a disaster from which they are only now fully recovering. From 6,000,000 boxes shipped before the frost, the number fell the following year to 75,000.

Florida Orange Crop, 1899-1909.

The production of oranges in Florida increased from 273,000 boxes in 1899 to 4,853,000 boxes in 1909, a sixteenfold gain. The number of trees of bearing age was 2,553,000 in 1900 and 2,766,618 in 1910, an increase of 7.8 per cent. The number of trees of non-bearing age in 1910 was 1,098,000. The value in 1909 was $4,305,000, or $1.11 per box.

Florida Lemon Crop, 1899-1909.

The lemon crop increased from 2,359 boxes in 1899 to 12,367 boxes in 1909, a gain of 10,008 boxes, a fourfold gain. The number of trees of bearing age reported decreased from 22,691 in 1900 to 11,740 in 1910, or almost one half. The number of trees of non-bearing age in 1910 was 7,329. The value of the lemon crop in 1909 was $13,753.

Orange and Lemon Crops of California and Florida, 1909-1910.

(From the Bureau of the Census.)

Orange and lemon trees of bearing and non-bearing age in 1910, and number of boxes of oranges and lemons produced in 1909, together with the value thereof, 1910:

	California	Florida
Oranges—		
Number of trees of bearing age, 1910	6,615,929	2,766,618
Number of trees of non-bearing age, 1910	2,093,101	1,097,896
Number of boxes produced in 1909	14,436,424	4,852,967
Value, 1909	$12,952,291	$4,304,987
Lemons—		
Number of trees of bearing age, 1910	927,130	11,740
Number of trees of non-bearing age, 1910	376,859	7,329
Number of boxes produced in 1909	2,715,974	12,367
Value, 1909	$2,925,759	$13,753
Pomeloes—		
Number of trees of bearing age	43,427	656,213

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Florida Citrus Fruit Crop.

Season	Oranges, boxes	Lemons, boxes
1884–85	600,000	----------
1885–86	900,000	----------
1886–87	1,260,000	----------
1887–88	1,450,000	----------
1888–89	1,950,000	----------
1889–90	2,150,000	----------
1890–91	2,450,000	----------
1891–92	2,664,791	18,389
1892–93	3,357,507	29,756
1893–94	4,163,849	57,219
1894–95	2,808,474	*713
1895–96	147,000	*
1896–97	216,579	1,800
1897–98	357,960	1,006
1898–99	1,250,000	2,200
1899–1900	972,589	1,447
1900–01	1,350,700	1,900
1901–02	972,589	1,447
1902–03	1,465,306	5,185
1903–04	1,950,823	4,131
1904–05	2,363,058	14,433
1905–06	2,961,195	8,299
1906–07	2,899,390	10,065
1907–08	3,793,126	6,718
1908–09†	5,250,000	----------
1909–10†	6,100,000	----------
1910–11†	4,600,000	----------
1911–12	4,458,000	----------
1912–13	8,125,449	----------

The prices received by Florida growers during the last season are of interest as compared with the prices received in California.

Averages Received by the Florida Citrus Exchange, f. o. b. Packing-House, Season 1912-1913.

Fruits	Boxes, 1911-12	Average per box, 1911-12	Boxes, 1912-13	Average per box, 1912-13
Oranges	766,650	$1 63	4,625,449	$1 97
Grapefruit	231,196	1 83	400,000	2 01
Tangerines	31,787	1 92	3,100,000	1 92
Mixed and miscellaneous	313,345	1 63	----------	----------
Grand totals	1,342,132	$2 18	8,125,449	$1 96

Lemons and limes are not reported separately, as the shipments are very small, but recently a considerable acreage has been set out in limes.

*The year of "the great freeze," when the temperature fell to 14 degrees at Jacksonville and 18 degrees at Tampa on December 29, 1894, followed by one equally severe in February, 1895, which killed most of the citrus trees in the state.

†The figures for the last four years include lemons, the quantity being so small that separate records are not kept. Limes, grapefruit, and tangerines are also included. In the season 1909-10, there were about 7,100 boxes of lemons, 12,600 of limes, and 553,000 boxes of grapefruit. The total for the season 1911-12 includes 810,000 boxes of grapefruit, and 156,000 boxes of tangerines; also limes and lemons, the quantities of which are comparatively small.

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THE CALIFORNIA RAISIN INDUSTRY.*

One of the largest and most important branches of fruit growing is the cultivation of the raisin grape, the acreage in which is now by far the largest in the world.

Raisins were first produced on a considerable scale in the southern part of the State, but Orange and Riverside counties no longer produce raisins; Los Angeles County very few; Yolo County, which at one time produced Sultanas and Thompson's Seedless in considerable quantities, now finds it more profitable to ship a large portion of the crop as table grapes, while the large vineyards in Riverside and San Bernardino counties are more devoted to wine grapes.

Counties Where Raisins Are Produced.

Of the fifty-eight counties in California, less than a dozen produce raisins in commercial quantities. At the present time the proportion of an average crop raised by each county is estimated to be approximately as follows:

County	Pounds
Fresno	94,000,000
Tulare	25,000,000
Kings	20,000,000
Sutter	4,000,000
San Bernardino	3,600,000
San Diego	3,200,000
Madera	2,400,000
Yolo	2,000,000
Kern	1,100,000

Sutter County produces a considerable quantity of Thompson's Seedless and Yolo County mostly Sultanas.

Los Angeles at one time produced a considerable quantity, but the last few years the amount has been under 1,000,000 pounds.

A normal raisin crop amounts to about 160,000,000 to 170,000,000 pounds; that for 1913 was about 130,000,000, classified as follows:

Varieties	Estimated crop, 1913	Packed by the Associated Raisin Company
Muscats	98,588,798	88,527,110
Thompson's seedless	18,390,922	16,206,174
Sultanas	12,252,430	10,750,065
Malagas		1,180,006
Feher Szagos	529,707	498,302
Black grapes	238,143	211,407
Totals	130,000,000	117,373,064

The average price received by growers will be about $75 per ton, and the total sum so paid will amount to about $4,840,275.

When raisins were first shipped East in any quantity it is impossible to say. In 1875, New York reported that up to November 1st, 6,000 22-pound boxes of California raisins had been received. About 1888, Fresno appears to have shipped a considerable quantity for the first time. In 1887, the market reports state that "Fresno raisins of excel-

*For the early history of the raisin industry in California, see Report for 1912, pages 134-139.

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lent quality are now on the market, especially from the Butler and Forsythe vineyards." The growers did their packing in those days.

Raisin Grape Varieties.

For more than half a century many varieties of grapes have been brought into California from all the grape-producing countries of the world. Coming from different countries, they have many names. Some of these have been preserved, some lost, and others have received local appellations.

The varieties of raisin grapes are few in number, the White Muscat of Alexandria and the Muscatel Gordo Blanca hold the first place, while Malaga and Feher Szagos are used to a small extent; the seedless varieties are the Sultana (which is grown extensively near Smyrna, in Asia Minor, and was first brought to California by Colonel Agostin Haraszthy in 1861), and Thompson's Seedless, so named by the Sutter County Horticultural Society after W. Thompson, Sr., of Yuba City, who procured the cuttings in 1878 from Elwanger & Barry of Rochester, New York. It was by them described as "a grape from Constantinople, named Lady de Coverly," and is now to be found in all parts of the State. Professor Bioletti, of the University of California, and other high authorities consider the variety identical with the Sultana, but an improved variety.

Consumption of Raisins.

Efforts have been made in recent years to increase the consumption of raisins in the United States, and there is no reason why they should not prove successful, as there is ample room for a greatly extended use of this wholesome fruit. The United Kingdom consumes annually about 73,000,000 pounds of raisins and 142,000,000 pounds of currants, or a total of about 215,000,000 pounds, equal to five pounds per capita. In the United States the consumption is less than one pound and a half per capita. In other words, if the American public appreciated raisins as they have been for centuries in Europe, the acreage in raisin grapes might be more than doubled without causing overproduction.

It was in 1892 that the California raisin crop first equalled that of Spain, and it has been increasing the difference ever since. Fresno County alone produces nearly double the quantity of raisins produced in Spain, which held the lead for centuries. But for this large production in California, there must have been a great advance in prices, which would have placed raisins beyond the reach of many.

The Raisin Crop of the World.

Year	Short tons of 2,000 pounds	In long tons of 2,240 pounds			Australia—pounds	
	California	Spain	Turkish Sultanas	Greek currants	Raisins	Currants
1904	40,000	25,000	34,100	151,000	7,449,116	2,004,427
1905	37,000	28,200	58,300	160,000	4,367,181	2,093,076
1906	45,000	15,800	27,500	135,000	6,148,168	2,346,980
1907	70,000	27,000	47,000	156,000	12,796,000	2,922,192
1908	65,000	26,000	45,000	185,000	10,427,760	3,404,464
1909	70,000	24,000	50,000	185,000	10,924,816	4,074,336
1910	56,000	19,000	15,000	123,000	12,191,424	7,107,520
1911	51,000	15,000	25,000	157,000	12,775,056	7,465,360
1912	85,000	12,000	50,000	167,000	15,408,400	10,470,208
1913 (estimated)	65,000	18,500	30,000	160,000		

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Raisins and Currants in Australia.

The raisins and currants produced in Australia are mostly consumed at home. The quantity at present, though not large, is increasing rapidly. Victoria and South Australia are the two states with the largest production.

In 1912 Victoria produced 11,527,488 pounds of raisins and 5,240,368 pounds of currants, and South Australia 3,880,912 pounds of raisins and 5,229,840 pounds of currants.

As currants can be successfully produced in Australia, there appears to be no reason why they could not be equally well grown in California, the climate being equally suitable.

In New South Wales, Queensland, and Western Australia small quantities of raisins and currants are also produced, as well as in Cape Colony, South Africa.

California Seeded Raisin Industry.

In the early seventies, a raisin seeding machine was invented by George E. Pettit, which was taken up and first put into practical use by the late Colonel Forsythe of Fresno, one of the leading pioneer raisin growers.

Seeded raisins were first introduced to the public by him. When first placed upon the market, it was only with some difficulty that about twenty tons were disposed of, and no one then imagined the enormous success this system was destined to achieve.

Fresno County is the center of the seeded raisin industry, where it originated. The following figures show the wonderful increase in this popular form of raisin during the last eighteen years:

Year.	Tons	Year.	Tons
1896	700	1905	21,000
1897	3,500	1906	24,000
1898	7,000	1907	26,000
1899	12,000	1908	24,000
1900	14,000	1909	28,000
1901	14,000	1910	31,500
1902	16,000	1911	33,000
1903	18,000	1912	43,000
1904	18,000	1913	49,000

Loose raisins are packed in 50-pound boxes; Thompson's Seedless in 12-ounce cartons, 45 to the case; seeded raisins in one-pound cartons, 36 to the case; also in 12-ounce, 45 to the case and a few in bulk in 25-pound boxes. Raisin clusters are packed in 5, 10 and 20-pound boxes.

Grape-seed Oil.

Grape-seed oil is prepared in certain parts of France, Italy, and Wurttemberg. That obtained cold, from the first pressing, is edible; the oil obtained by pressing and heating and that extracted by means of solvents have a dark color and a bitter taste and, after being purified by concentrated sulphuric acid and cleared with bone black, are used for lighting purposes and in the manufacture of soap and, on account of the small cost, would be good substitutes for the expensive oils

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used in the textile industry. Aside from the uses mentioned, and because some of its chemical properties are similar to those of castor oil, grape-seed oil has suggested itself as a substitute for castor oil in the preparation of compounds used in the manufacture of red colors (rojo de audinopolis).

On an average, the fresh refuse of the grape contains 25 per cent of seeds. According to the variety of the grapes and their degree of ripeness, the quantity of oil which can be rendered from the seeds varies from 6 to 20 per cent.

THE GREEK CURRANT.

The Greek or Zante currant has been produced on a very large scale for centuries. They are the seedless variety of a peculiar dwarf grape-vine producing a small black grape, or currant, of a peculiar flavor; it is the most important crop in Greece, as it forms nearly one half of the total exports. The vineyards cover 150,000 acres, and produce the enormous total of from 300,000,000 pounds to 370,000,000 pounds in a favorable season, or far more than double the size of an average California raisin crop.*

The American consul at Patras reports that although the American market demands the best qualities of other fruits, yet in currants they only take the lowest grades. The best grades are limited in quantity and are usually all taken up within three months after the season opens. Perhaps this condition of the currant trade is the cause of complaints being made that the fruit is often poor and not properly cleaned.

IMPORTED ALMERIA GRAPES.

These table grapes come from the province of that name in Spain, and during the last six years their value has amounted to between $1,500,000 and $2,000,000 a year. They come into competition with late-season shipments of California Tokays, Cornichon and Emperor grapes.

Malaga is the center of the grape-exporting industry of southern Spain. Originally the Almeria or Malaga grape was cultivated only in and about a small town called Loja, about 50 miles north of Malaga. Cuttings were distributed throughout this entire district, but these table grapes, the only grapes that will retain their freshness, firmness, and flavor for months after being cut from the vine, are the product of the old cuttings taken from Loja and now cultivated in the Province of Almeria.

Owners of vineyards in the Malaga district have made repeated efforts to produce a grape possessing the keeping qualities of the Almeria fruit, without obtaining satisfactory results. Cuttings taken from Almeria produce a different grape when transplanted outside of that particular district. Cultivated in and about Malaga, the Almeria cuttings produce a tender, thin-skinned grape, more or less on the order of the Muscatel, a grape that may not be preserved for over two months. Cuttings of the Almeria grape have been imported into California, but the result so far has not been satisfactory.

*For details regarding the Greek currants and the "Privileged Company" which controls and markets the crop, see Report for 1912, page 140.

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Almeria Grapes Imported.

(Duty, 25 cents per cubic foot of capacity of barrel or packages.)

Year	Cubic feet	Value
1907	1,298,469	$1,575,521
1908	2,234,508	2,743,356
1909	1,203,419	1,575,620
1910	1,365,310	1,682,994
1911	1,485,159	1,723,022
1912	2,000,841	2,331,504
1913	1,135,942	1,359,415

FRUIT CANNING AND PRESERVING.

California made a pack of hermetically sealed fruits in tin cans in 1861. For many years after that, canned goods were a luxury, relatively expensive, and used only in emergencies, on board ship or at remote places where other food was not obtainable.

The real importance and development of the canning industry did not commence until about the year 1875. The value of its products, which in 1889 was $6,621,931, more than doubled during each of the two following decades, amounting in 1909 to $32,914,829.

The case, which is used as the unit of measure for canned fruits and vegetables in the table below, consists of 24 standard-size cans No. 2 (also called 2-pound cans) for berries, cherries and plums, and No. 3 (also called 3-pound cans) for all fruits and vegetables.

California ranks first among the states in the production of canned apricots, peaches and pears, and of dried peaches and prunes; the State had a complete monopoly of the production of dried apricots and of raisins in the United States in 1909, neither of these being produced in any other state.

The value of dried fruit constituted 55.3 per cent of the total value of products of the industry in 1909, as compared with 52.9 per cent in 1904 and 17.2 per cent in 1899. The increase in the value of the dried fruit products during the decade 1899–1909 was 608.8 per cent, the greatest advance being from 1899 to 1904, when the gain was 437.1 per cent. The most important of the dried fruit products, both in point of quantity and of value, were raisins and prunes. The fruit most largely canned in 1909 was peaches, the value of which constituted 9.2 per cent of the total for the canning and preserving industries.

CANNED AND DRIED FRUITS, 1899-1909.

(Compiled from the Census Reports.)

Canned Fruits.

Product	1899		1904		1909	
	Cases	Value	Cases	Value	Cases	Value
Apples	25,287	$71,427	31,286	$67,591	67,697	$136,855
Apricots	531,568	1,582,927	532,038	1,619,757	560,186	1,819,558
Berries	87,564	218,733	67,467	168,640	108,672	200,094
Cherries	49,375	155,813	171,298	457,169	213,518	463,476
Peaches	903,676	3,103,775	744,715	2,640,524	1,166,627	3,013,203
Pears	444,343	1,610,900	524,197	1,577,823	436,272	1,316,022
Plums	358,298	596,484	196,379	349,307	138,477	230,384
All other			54,215	97,272	19,900	68,750
Totals		$7,340,059		$6,978,083		$7,248,342

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Dried Fruits

Dried fruits	Pounds	Value	Pounds	Value	Pounds	Value
Apples	3,087,220	$155,893	811,254	$40,659	6,860,170	$481,173
Apricots	5,310,217	442,544	19,559,573	1,410,838	29,205,569	2,277,177
Peaches	5,502,390	301,495	25,845,364	1,701,105	46,827,391	2,422,043
Prunes	24,102,329	907,041	114,580,431	3,169,878	118,917,876	4,394,922
Raisins	10,734,221	720,268	121,409,881	6,349,381	195,774,767	6,912,533
All other	601,506	42,279	18,102,416	1,128,740	26,140,777	1,724,468
Totals	49,337,883	$2,569,520	300,308,919	$13,800,601	423,726,550	$18,212,316

Fresno city is one of the principal centers of the canning and preserving industry of the State, in 1909 reporting nearly one fourth of the total value of products for this industry in California and a much larger proportion of the total value of dried fruits.

CANNED FRUIT PACKED, BY VARIETIES, 1911-1913.

Varieties	Cases, 1911	Cases, 1912	Cases, 1913
Apples	65,300	72,500	79,000
Apricots	858,325	863,000	650,000
Blackberries	77,825	826,000	70,000
Cherries	198,805	351,250	287,700
Grapes	70,915	66,600	30,000
Peaches and nectarines	2,091,148	2,200,000	1,995,300
Pears	618,920	1,062,000	700,000
Plums	165,840	241,000	145,000
Figs	1,500	1,500	----------
Loganberries	19,117	20,000	17,500
Raspberries	3,625	2,000	6,000
Strawberries	7,715	4,500	20,000
Quinces	18,000	20,000	----------
Currants	14,500	15,000	----------
Oranges	3,500	4,000	----------
Other fruits	15,000	----------	15,000
Totals	4,095,035	5,005,950	4,015,500

The leading varieties of fruits used for canning are as follows:

Apricots—
Moorpark.
Hunskirk.
Blenheim.
Royal.

Cherries—
Royal Anne.
Centennial.
Rockport.
Black Tartarian.

Figs—
Endish.

Grapes—
Muscat.

Pears—
Bartlett.

Nectarines—
Stanwich.

Plums—
Reine Claude.
Greengage.
Washington.
Damson.
Jefferson.
Egg.
Golden Drop.

Peaches—
Clingstones:
Phillip.
Tuscan.
Golden Cling.
Freestones:
Lovell.
Muir.
Crawford.
Foster.

Dried Fruit Packed, 1911-1913.

Varieties	Tons, 1911	Tons, 1912	Tons, 1913
Prunes	95,000	100,000	45,000
Raisins	60,000	92,500	65,000
Peaches	13,500	28,000	20,000
Apricots	11,000	19,000	9,000
Pears	2,000	5,000	2,000
Figs	5,000	4,500	3,500
Apples	4,000	3,500	2,500
Miscellaneous	3,800	1,000	2,000
Totals	194,300	253,500	149,000

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The varieties of fruit cured by drying are as follows:

Apricots—
Royal.
Blenheim.
Figs—
Adriatic.

Peaches—
Lovell.
Muir.
Crawford.
Foster.

Nectarines—
Stanwich.
Pears—
Bartlett.

Plums—
Washington.
Jefferson.
Egg.
Prunes—
Petites.

Dried fruit is packed in boxes of 25 and 50 pounds, and 12½ kilos for abroad.

NUTS.

About three fourths of the nuts produced in the United States are grown in California, walnuts and almonds being the principal crops. Almonds are a native of western Asia and Morocco, and are produced in large quantities in Syria and Palestine.

The walnut is a native of the mountains of Greece and Armenia and the northwest Himalayas, in India, and is largely cultivated in most temperate countries. Walnuts in the United States are produced almost exclusively in California, Orange, and Los Angeles counties taking the lead.

California produces practically the whole of the almond crop in the United States.

Peanuts thrive well in southern California, chiefly on the lower lands of the coast region, while in central and northern California, peanuts are mostly grown in the river bottoms of the Sacramento and San Joaquin valleys. The peanut was originally a native of South America. Large quantities are exported to London, Hamburg, and Marseilles for the sake of the oil produced from the seeds, which yield from 42 to 50 per cent oil, which is said to be an excellent substitute for olive oil.

During the civil war almost every army in the field occupied at some time or other that portion of Virginia in which peanuts were grown. The knowledge of the culture and value of the crop acquired by soldiers was utilized by them on returning home, with the result that between 1865 and 1870 the production increased from 200 to 300 per cent annually.

The pecans grow well in the lower lands of the interior valleys, but are raised in only limited quantities.

Walnuts.

The English walnut is the greatest nut grown in the State, judged by the size and value of the crop. It is almost entirely grown in the four southern counties of Santa Barbara, Los Angeles, Orange, and Ventura.

The production of walnuts has doubled in the last ten years, until the domestic supply produces half the quantity consumed in the United States. In 1911 about 50 per cent of the walnuts of grade No. 1 were sold at 14 cents a pound f. o. b. California, less 7½ per cent paid to brokers as cash discount and commission. The remaining half of the 1911 crop was sold at from 11 to 13½ cents f. o. b., less the same commission. The production in 1912 was approximately 19,500,000 pounds, and the entire crop was marketed at 14 cents f. o. b., less the above rate of commission. In 1913 the crop was about 22,378,354 pounds, of which amount 1,224,302 pounds were so badly damaged by the hot wave which

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visited southern California in September that they were marked as off-grade, at a considerably lower price than the standard grade of walnuts.

The price for the last twelve years is as follows:

Year	Price, cents	Year	Price, cents
1902	10	1908	12½
1903	12½	1909	
1904	11	1910	15
1905	13	1911	14
1906	11	1912	14
1907	15	1913	16

Only two districts in Europe—Sorrento, in Italy, and Grenoble, in France—produce walnuts comparable in size and quality with those grown in California.

The bulk of imported nuts are of the Marbot and Cornes varieties, which correspond in size and quality to the second grade of the Pacific coast production. The consumption of walnuts in the United States has increased from about 23,000,000 pounds in 1903 to 53,000,000 pounds in 1912.

Almonds.

The production of almonds in California in 1912 was 6,000,000 pounds, or nearly double the quantity of the previous year, and in 1913 some 2,200,000 pounds. The net prices paid to growers, after all expenses of warehousing and selling had been paid, by the Almond Growers' Exchange, which controls about 60 per cent of the crop, is as follows:

Grade	Price, cents, 1911	Price, cents, 1912	Price, cents, 1913
Nonpareil	16½	13	17½
I X L	15½	12½	17
Ne Plus Ultra	14½	11½	16
Drake Seedling	12	9½	13
Hardshell	8	7	8½

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CALIFORNIA FRUIT AND NUT CROPS.

1887—1913.

Imports and Exports of Apples, Apricots, Figs, Oranges, Lemons, Olives, Peaches, Nectarines, Pears, Prunes, Plums, Raisins, Dried Grapes, and Greek Currants.

CANNED FRUITS, NUTS, ALMONDS, AND WALNUTS.

APPLES (DRIED).

(None imported.)

Year	California crop, pounds	Exported	
		Pounds	Value
1887	700,000	8,130,396	$413,363
1888	550,000	11,803,161	812,682
1889	500,000	22,102,579	1,201,070
1890	1,000,000	20,861,462	1,038,682
1891	1,800,000	6,973,168	409,605
1892	2,750,000	26,042,003	1,288,102
1893	3,800,000	7,966,819	482,065
1894	5,850,000	2,846,645	168,054
1895	4,560,000	7,085,946	461,214
1896	2,350,000	26,691,963	1,340,507
1897	5,250,000	30,775,401	1,340,159
1898	3,520,000	31,031,254	1,897,725
1899	5,900,000	19,305,739	1,245,733
1900	6,360,000	34,964,010	2,247,851
1901	6,450,000	28,309,023	1,510,581
1902	9,750,000	15,664,468	1,190,593
1903	3,600,000	39,646,297	2,378,635
1904	3,000,000	48,301,665	2,791,421
1905	6,500,000	39,272,890	2,208,414
1906	5,500,000	27,852,831	2,044,820
1907	3,600,000	45,697,948	3,166,946
1908	6,800,000	24,237,873	1,946,810
1909	5,800,000	33,474,634	2,339,936
1910	6,200,000	25,076,618	2,056,692
1911	9,000,000	21,804,086	1,944,209
1912	6,500,000	53,664,639	4,545,971
1913	4,000,000	41,574,562	2,898,211

Dried Apples Exported in 1913.

Country	Pounds	Value
Germany	17,970,592	$1,207,705
Netherlands	12,846,054	890,673
Other countries	10,757,916	799,833
Totals	41,574,562	$2,898,211

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APRICOTS (DRIED).

(None imported.)

Year	California crop, pounds	Exported	
		Pounds	Value
1886	3,150,000		
1887	3,600,000		
1888	3,250,000		
1889	2,500,000		
1890	8,500,000		
1891	13,500,000		
1892	12,500,000		
1893	9,500,000		
1894	28,750,000		
1895	10,650,000		
1896	6,740,000		
1897	30,125,000		
1898	8,240,000		
1899	11,600,000		
1900	28,080,000		
1901	15,750,000		
1902	37,525,000	1,928,367	$178,143
1903	21,000,000	9,190,081	713,887
1904	17,000,000	7,205,686	608,511
1905	38,500,000	6,854,154	606,777
1906	6,500,000	13,760,281	1,325,422
1907	3,000,000	2,760,432	336,812
1908	36,000,000	1,224,602	229,467
1909	32,000,000	16,597,871	1,512,417
1910	33,500,000	12,028,834	1,218,423
1911	14,000,000	19,329,358	2,085,437
1912	35,500,000	13,413,430	1,885,855
1913	18,000,000	35,016,730	3,513,473

Dried Apricots Exported in 1913.

Country	Quantity	Value
United Kingdom	13,174,672	$1,322,496
Germany	7,806,944	800,568
France	4,214,153	415,597
Netherlands	3,625,314	404,559
Other countries	6,195,647	570,253
Totals	35,016,730	$3,513,473

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FIGS.

(Duty, 2 cents per pound.)

Year	California crop, pounds	Imported	
		Pounds	Value
1886	100,000	7,223,070	$505,876
1887	200,000	8,724,583	487,602
1888	175,000	10,058,053	496,755
1889	225,000	10,649,049	482,759
1890	360,000	10,284,998	456,567
1891	365,000	9,201,565	697,562
1892	509,000	8,338,759	511,142
1893	890,000	10,503,928	548,995
1894	1,540,000	7,985,959	392,040
1895	2,750,000	11,855,890	587,420
1896	2,160,000	11,900,710	639,512
1897	3,250,000	8,940,762	535,380
1898	4,780,000	9,628,426	509,002
1899	5,800,000	7,284,058	356,762
1900	4,000,000	8,812,487	513,895
1901	6,500,000	9,933,871	458,513
1902	7,250,000	11,087,131	487,733
1903	6,000,000	16,482,142	775,917
1904	5,700,000	13,178,061	660,360
1905	7,250,000	13,364,107	617,027
1906	7,750,000	17,562,358	722,967
1907	6,000,000	24,346,173	1,136,924
1908	6,000,000	18,836,574	867,523
1909	7,500,000	15,235,513	691,981
1910	6,250,000	17,362,197	775,319
1911	8,000,000	23,459,728	1,059,340
1912	10,000,000	18,765,408	934,763
1913	11,100,000	17,003,848	944,317

Nearly all the figs are imported from Smyrna, in Turkey in Asia, about two million pounds from Greece and smaller quantities from Italy and Spain.

Exports of domestic figs are not shown separately in the customs returns, but are included in "All other green, ripe, or dried fruits."

OLIVES.

(Duty, 15 cents per gallon.)

Year	Imported	
	Gallons	Value
1878		$74,971
1879		48,549
1880		79,032
1881		112,456
1882		84,473
1883		108,329
1884–99		
1900		
1901–06		
1907	2,298,480	1,277,973
1908	3,121,788	1,358,897
1909	2,969,329	1,349,023
1910	4,555,975	1,659,801
1911	3,044,947	1,567,546
1912	5,076,857	2,303,277
1913	2,946,076	1,896,982

NOTE.—Olives in California, although cultivated on a considerable scale, have generally been considered one of the minor crops, and no regular records of the crop have been kept until the last few years. A large acreage has been planted in the last two or three years.

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Most of the olives imported into this country come from Italy, France ranking second.

Exports of domestic olives and olive oil are not shown separately in the customs returns, but included in "All other fruits or oils."

OLIVE OIL.

Imports.

(Duty, in cask, 20 cents per gallon; in bottles, 30 cents per gallon. Olive oil unfit for food, free.)

Year	For manufacturing or mechanical purposes		For table use	
	Gallons	Value	Gallons	Value
1880	118,369	$83,543	264,762	$442,935
1881	160,051	102,403	224,362	378,280
1882	243,190	151,067	264,838	478,747
1883	279,374	165,395	257,375	459,759
1884	610,429	672,552		
1885	*	*	493,928	†547,017
1886	*	*	634,354	†651,590
1887	*	*	744,766	†662,197
1888	*	*	654,162	†617,172
1889	*	*	893,338	†696,065
1890	*	*	893,984	†819,110
1891	*	*	605,509	†733,489
1892	*	*	706,486	†876,613
1893	*	*	686,852	†891,424
1894	*	*	757,478	†909,897
1895	*	*	775,046	†952,405
1896	*	*	942,598	†1,107,049
1897	*	*	928,567	†1,134,077
1898	*	*	736,877	†923,804
1899	*	*	930,042	†1,090,250
1900	*	*	967,702	†1,170,871
1901	*	*	963,059	†1,266,293
1902	*	*	1,339,097	†1,579,409
1903	*	*	1,494,132	†1,736,648
1904	*	*	1,713,590	†1,875,825
1905	*	*	1,923,174	†2,108,893
1906	2,538,366	1,105,876	2,447,131	2,566,994
1907	1,471,766	682,656	3,449,517	3,523,725
1908	1,565,253	703,829	3,799,112	3,876,901
1909	369,979	183,983	4,129,454	5,069,655
1910	842,926	477,679	3,702,210	4,869,114
1911	578,477	378,819	4,405,827	6,014,191
1912	636,013	389,539	4,836,515	6,170,882
1913	619,356	407,074	5,221,001	6,739,172

NOTE.—No record has been kept of the annual output of California olive oil, until recently, although the amount has been considerable for some years.

*Included in "Olive oil for table use."

†1885-1905 includes olive oil for manufacturing purposes.

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CALIFORNIA ORANGE AND LEMON CROP.

(Carloads.)

Season	Southern California		Total carloads	Northern California*		Grand total, carloads
	Lemons	Oranges		Oranges	Lemons	
1886-87	12	2,200	2,212			
1887-88	20	2,500	2,520			
1888-89	26	2,782	2,808			
1889-90	34	3,476	3,510			
1890-91	40	4,016	4,056			
1891-92	52	4,400	4,452			
1892-93	65	5,871	5,936			
1893-94	145	5,726	5,871			
1894-95	335	4,687	5,022			
1895-96	565	7,010	7,575			
1896-97	1,378	5,972	7,350			
1897-98	1,166	13,987	15,153			
1898-99	903	9,448	10,351			
1899-1900	1,447	16,362	17,809			
1900-01	2,924	21,173	24,097			
1901-02	2,816	17,571	20,387			
1902-03	2,649	19,776	22,425	†1,304		23,729
1903-04	2,782	25,117	27,899	†1,567		29,466
1904-05	4,274	25,608	29,882	†1,734		31,616
1905-06	3,789	22,175	25,964	†1,564		27,528
1906-07	3,507	23,986	27,493	†2,333		29,826
1907-08	4,959	24,538	29,497	†3,150		32,647
1908-09	6,196	31,875	38,071	†2,501		40,572
1909-10	4,782	25,331	30,113	2,921	109	33,143
1910-11	6,764	36,821	43,585	2,687	127	46,399
1911-12	5,961	30,327	36,288	4,220	172	40,680
1912-13	2,192	13,574	15,766	2,453	112	18,331

*Lemons and oranges not reported prior to 1902-03 and not shown separately until 1909. The number of boxes per car of oranges and lemons has varied considerably, as the size of cars in recent years has increased. In 1904-05, and prior to that date, oranges averaged about 374 boxes and lemons 313 boxes to the car. At the present time the numbers are about 396 for oranges and 336 for lemons.

†Including lemons.

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Imports and Exports of Oranges.

(Duty, in packages exceeding 5 cubic feet, or in bulk, ½ of 1 cent per pound.)

Year	Exports		Imports	
	Boxes	Value	Pounds	Value
1885				$2,088,204
1886				1,871,839
1887				2,408,140
1888				2,268,872
1889				1,961,889
1890				1,916,652
1891				2,339,987
1892				1,210,338
1893				1,695,469
1894				1,127,005
1895				1,997,266
1896				2,694,131
1897				2,324,907
1898		$339,396		886,722
1899		282,313		1,097,596
1900		271,468	68,618,938	1,087,041
1901		436,560	50,332,914	716,457
1902		420,835	52,742,476	784,640
1903		465,397	56,872,070	818,780
1904		739,593	35,896,260	525,468
1905		929,151	28,880,575	374,088
1906		1,110,993	31,134,341	456,726
1907		1,255,104	21,267,346	354,495
1908	654,251	1,577,661	18,397,429	275,060
1909	866,753	2,131,724	8,435,873	137,390
1910	932,118	2,213,905	4,676,118	82,457
1911	1,179,273	2,983,322	7,672,186	116,658
1912	1,197,363	3,022,859	7,628,662	108,880
1913	1,063,233	2,976,520	12,252,960	233,760

NOTE.—In years for which no figures are given, oranges were included in "Other fresh or dried fruits." Oranges are mostly imported from Mexico, West Indies, and Italy. The bulk of California oranges exported go to Canada.

The export of lemons in 1913 amounted to 81,949 boxes, value $399,409.

Imports of Lemons and Limes.

(Duty, in packages exceeding 5 cubic feet, or in bulk, ½ of 1 cent per pound.)

Year	Pounds	Value	Year	Pounds	Value
1885		$2,510,426	1900	160,198,056	$3,666,881
1886		2,608,819	1901	148,514,614	3,516,856
1887		3,835,147	1902	164,075,309	3,320,359
1888		3,395,983	1903	152,004,213	3,079,221
1889		3,189,534	1904	171,923,221	3,659,598
1890		3,374,032	1905	139,084,321	2,905,082
1891		4,351,970	1906	138,717,252	2,933,990
1892		4,548,263	1907	157,859,906	4,253,296
1893		4,994,328	1908	178,490,003	4,388,530
1894		4,285,278	1909	135,183,550	2,623,399
1895		3,917,326	1910	160,214,785	3,136,933
1896		5,040,344	1911	134,968,924	2,985,561
1897		4,043,822	1912	145,639,396	3,368,863
1898		2,848,130	1913	151,416,412	4,300,266
1899		4,398,004			

NOTE.—Of the imported lemons in 1912, 145,275,122 pounds came from Italy, and the balance of 364,274 from other countries. The exports of domestic lemons were not shown separately in the customs returns until 1913, but were included under "All other" fruit.

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PEACHES AND NECTARINES (DRIED).

(None imported.)

Year	California crop, pounds			Exported	
	Peaches	Nectarines	Total	Pounds	Value
1890	12,250,000	525,000	12,775,000		
1891	12,250,000	625,000	13,875,000		
1892	13,500,000	720,000	14,220,000		
1893	16,800,000	780,000	17,580,000		
1894	30,540,000	1,250,000	31,790,000		
1895	24,500,000	1,325,000	25,825,000		
1896	16,460,000	625,000	17,085,000		
1897	27,150,000	285,000	27,435,000		
1898	10,960,000	190,000	11,150,000		
1899	34,800,000	840,000	35,640,000		
1900	34,340,000	870,000	35,210,000		
1901	29,510,000	650,000	30,160,000		
1902	50,420,000	910,000	51,330,000		
1903	36,000,000	635,000	36,635,000		
1904	23,000,000	420,000	23,420,000		
1905	35,000,000	370,000	35,370,000		
1906	22,500,000	340,000	22,840,000	1,181,649	$110,407
1907	24,000,000	275,000	24,275,000	1,757,650	186,043
1908	48,000,000	525,000	48,525,000	1,148,598	144,318
1909	40,000,000	750,000	40,750,000	2,403,430	151,334
1910	50,000,000	500,000	50,500,000	2,617,069	151,520
1911	22,000,000	800,000	22,800,000	7,125,014	499,530
1912	53,000,000	500,000	53,500,000	4,425,803	422,766
1913	40,000,000	400,000	40,400,000	6,529,633	444,879

NOTE.—Included in "All other green, ripe, or dried fruits" in the years where no figures are given.

PEARS.

(None imported.)

Year	California crop, dried pears, pounds	Exported, green or ripe, value
1890	600,000	
1891	11,000,000	
1892	2,250,000	
1893	2,640,000	
1894	6,530,000	
1895	5,400,000	
1896	3,650,000	
1897	6,350,000	
1898	6,620,000	
1899	5,760,000	
1900	14,550,000	
1901	6,510,000	
1902	5,250,000	
1903	4,650,000	
1904	3,500,000	
1905	3,500,000	
1906	7,000,000	$631,972
1907	1,000,000	675,944
1908	5,000,000	288,918
1909	2,500,000	546,198
1910	2,000,000	302,958
1911	4,000,000	578,067
1912	3,500,000	784,627
1913	2,000,000	796,913

NOTE.—Included under "All other green, ripe, or dried fruit" in the years where no figures are given. Dried pears are not shown separately. Pears are mostly exported to the United Kingdom and Canada.

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DRIED PRUNES.

(Duty, 1 cent per pound.)

Year	California crop, pounds	Exports	
		Pounds	Value
1886	4,340,000	*	*
1887	7,500,000		
1888	8,050,000		
1889	17,150,000		
1890	16,200,000		
1891	13,875,000		
1892	22,500,000		
1893	52,180,000		
1894	44,750,000		
1895	64,500,000		
1896	55,200,000		
1897	97,780,000		
1898	90,420,000	15,940,791	$1,021,888
1899	112,900,000	5,615,565	380,847
1900	174,000,000	25,922,371	1,646,332
1901	81,600,000	10,021,564	589,113
1902	195,000,000	23,358,849	1,404,422
1903	165,000,000	66,385,215	3,512,507
1904	135,000,000	73,146,214	3,410,497
1905	70,000,000	54,993,849	2,455,056
1906	180,000,000	24,869,744	1,410,636
1907	105,000,000	44,400,104	2,400,960
1908	57,000,000	28,148,450	1,642,114
1909	150,000,000	22,602,288	1,078,210
1910	75,000,000	89,014,880	4,016,554
1911	140,000,000	51,080,711	3,271,971
1912	200,000,000	74,328,074	4,969,053
1913	90,000,000	117,950,875	6,665,870

*Previous to 1898, the export of prunes was included under "Other fresh or dried fruits." The largest quantity of prunes exported go to Germany and Canada; the imports of prunes are included with plums.

PLUMS.

(Duty, 1 cent per pound.)

Year	California plum crop, pounds	Imports of plums and prunes	
		Pounds	Value
1886	400,000	64,995,545	$2,026,595
1887	450,000	92,032,625	2,999,648
1888	365,000	70,626,027	2,197,150
1889	330,000	46,154,825	1,423,304
1890	1,000,000	58,093,410	1,789,176
1891	1,250,000	34,281,322	2,054,486
1892	2,000,000	10,869,797	437,271
1893	1,500,000	26,414,112	1,162,318
1894	2,760,000	9,908,122	416,342
1895	4,500,000	14,352,057	527,625
1896	2,100,000	483,658	68,862
1897	3,250,000	710,028	73,303
1898	2,460,000	303,992	39,660
1899	3,360,000	600,360	63,574
1900	3,900,000	443,457	47,700
1901	3,450,000	745,974	62,880
1902	2,560,000	522,478	44,077
1903	2,870,000	633,819	63,218
1904	2,300,000	494,105	46,976
1905	1,860,000	671,604	63,617
1906	2,000,000	497,494	53,348
1907	1,500,000	323,377	45,386
1908	1,000,000	335,089	49,322
1909	1,200,000	296,123	41,696
1910	750,000	*	*
1911	1,200,000	*	*
1912	750,000	*	*
1913	1,200,000	*	*

*Included in "All other fruits" after 1909, the quantity being so small.

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CALIFORNIA RAISIN CROP, AND EXPORTS AND IMPORTS.

(Duty on raisins and dried grapes, 2 cents per pound.)

Year	California crop, pounds	Exports		Imports	
		Pounds	Value	Pounds	Value
1884	3,500,000			53,702,220	$3,290,150
1885	9,400,000			38,319,787	2,661,699
1886	14,460,000			40,387,946	2,885,123
1887	16,000,000			40,673,288	2,881,981
1888	18,860,000			40,476,763	2,070,120
1889	19,740,000			35,091,139	1,736,786
1890	38,000,000			36,914,330	1,997,103
1891	52,000,000			39,572,655	2,018,879
1892	57,000,000			20,687,640	964,309
1893	85,000,000			27,543,563	1,266,342
1894	103,000,000			13,751,050	554,081
1895	91,000,000			15,921,278	651,420
1896	68,000,000			10,826,094	460,200
1897	93,000,000			12,650,598	567,039
1898	80,000,000	3,109,639	$167,062	6,593,833	381,889
1899	71,000,000	4,659,807	242,620	4,933,201	282,400
1900	90,000,000	2,415,456	139,689	10,309,498	531,124
1901	74,000,000	3,512,164	218,715	3,860,836	297,631
1902	106,000,000	2,323,274	149,216	6,683,545	399,973
1903	120,000,000	4,280,028	284,530	6,715,675	476,844
1904	75,000,000	4,020,418	281,402	6,867,617	355,542
1905	87,000,000	7,054,824	372,087	4,041,689	273,031
1906	95,000,000	4,528,502	305,768	12,414,855	524,590
1907	140,000,000	9,128,827	599,395	3,967,151	364,403
1908	130,000,000	5,684,541	427,583	9,132,353	554,633
1909	140,000,000	7,880,161	455,657	5,794,320	327,644
1910	115,000,000	8,526,114	417,403	5,042,683	296,047
1911	120,000,000	18,659,992	1,069,300	2,479,220	237,422
1912	185,000,000	19,949,046	1,351,986	3,255,861	295,466
1913	130,000,000	28,121,507	1,512,642	2,579,705	241,630

NOTE.—Imported raisins come almost entirely from Spain, and sultanas, which are included in the above figures, from Smyrna in Turkey in Asia. These latter have also greatly decreased in recent years from upward of 7,000,000 pounds in 1906 to less than 500,000 pounds the last two years. Canada is our best customer for raisins, taking 11,004,000 pounds. Other countries taking over one million pounds are: New Zealand 2,647,000 pounds, Germany 1,336,000 pounds and the United Kingdom 1,130,000 pounds.

DRIED GRAPES.

(Imports and exports included in raisins.)

Year	California crop, pounds	Year	California crop, pounds
1886	1,600,000	1900	480,000
1887	1,800,000	1901	350,000
1888	2,340,000	1902	375,000
1889	2,500,000	1903	410,000
1890	10,500,000	1904	340,000
1891	5,500,000	1905	385,000
1892	4,000,000	1906	400,000
1893	4,880,000	1907	375,000
1894	4,520,000	1908	360,000
1895	4,250,000	1909	450,000
1896	2,700,000	1910	650,000
1897	3,450,000	1911	500,000
1898	640,000	1912	800,000
1899	450,000	1913	767,850

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IMPORTS OF GREEK CURRANTS.

(Duty, 1½ cents per pound.)

Year	Pounds	Value
1891*	33,128,140	$1,246,074
1892*	36,665,828	1,209,119
1893*	33,166,546	1,185,537
1894*	52,664,843	774,802
1895*	16,450,706	258,659
1896*	33,040,846	551,072
1897	29,265,761	596,084
1898	25,186,210	837,987
1899	30,849,253	798,357
1900	36,251,779	916,908
1901	16,049,198	916,994
1902	36,238,976	1,238,756
1903	33,878,209	743,644
1904	38,347,649	997,430
1905	31,742,919	764,289
1906	37,078,311	1,119,146
1907	38,392,779	1,746,941
1908	38,652,656	1,592,018
1909	32,482,111	1,185,106
1910	33,326,030	1,190,020
1911	33,439,565	1,486,263
1912	33,151,396	1,561,350
1913	47,003,345	1,602,987

*From 1891 to 1894, currants were duty free, and in 1895, 1896 and 1897, currants not from Zante were admitted free. Currants practically all come from Greece.

CALIFORNIA CANNED FRUIT, AND EXPORTS.

(None imported.)

Year	California pack, cases	Exports, value
1886	675,000	$580,422
1887	772,500	506,794
1888	1,360,400	834,668
1889	1,420,600	915,341
1890	1,495,300	698,321
1891	1,571,200	703,880
1892	1,602,370	1,558,820
1893	1,001,640	1,137,660
1894	1,528,815	660,723
1895	1,639,807	871,465
1896	1,602,446	1,376,281
1897	1,942,982	1,686,723
1898	2,085,166	1,624,741
1899	3,003,100	2,330,715
1900	2,775,800	3,127,278
1901	2,677,000	3,006,109
1902	2,252,000	1,195,635
1903	2,783,500	1,739,571
1904	2,840,600	2,637,002
1905	3,252,500	2,541,025
1906	3,125,000	2,348,064
1907	2,983,000	1,581,047
1908	4,734,000	1,549,826
1909	3,047,000	2,899,374
1910	3,600,000	2,656,019
1911	4,095,035	2,686,445
1912	5,005,950	4,012,463
1913	4,015,500	5,599,373

Exported domestic canned fruit in 1912, to the United Kingdom, $2,690,834; to all other countries, $1,321,629.

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IMPORTS OF MISCELLANEOUS FRUITS.

Duty on Imported Preserved Fruits.

Preserved in sugar or their own juices, 1 cent a pound; if containing over 10 per cent of alcohol, 20 per cent ad valorem and in addition $2.50 per proof gallon of alcohol in excess of 10 per cent. Jellies, 20 per cent ad valorem; pineapples preserved in their own juice, 20 per cent ad valorem.

Year	Prepared or preserved fruits, value	All other fresh or dried fruits, value	Total fruits, value
1890	954,331	3,168,367	$18,310,007
1891	1,289,137	2,552,245	23,018,937
1892	1,234,828	2,508,940	18,176,471
1893	864,166	3,372,666	20,944,918
1894	526,561	2,980,584	16,566,782
1895	570,568	1,725,342	15,227,079
1896	598,928	2,128,056	16,957,307
1897	605,053	1,810,807	14,926,771
1898	922,357	1,294,855	12,329,012
1899	1,020,644	1,579,652	15,586,664
1900	1,243,479	1,989,546	16,284,758
1901	1,366,801	2,059,130	16,317,848
1902	1,454,788	2,053,588	17,436,184
1903	1,521,443	2,353,864	18,860,238
1904	1,796,209	2,749,670	18,964,688
1905	1,599,488	2,924,187	19,779,113
1906	2,437,766	2,484,345	21,542,322
1907	1,272,445	1,363,167	26,124,277
1908	1,550,246	2,250,815	27,710,799
1909	1,062,775	1,912,949	22,446,430
1910	956,368	920,362	24,177,160
1911	893,633	971,572	27,017,632
1912	936,008	1,693,516	29,549,281
1913	795,399	1,115,330	28,657,084

Bananas to the value of about $14,000,000, and dates valued at $363,734, are also imported, but not being produced in California, are omitted from these lists.

EXPORTS OF DOMESTIC FRUITS.

Year	Preserved other than canned	Other fresh or dried fruits	Total fruits
1890	59,401	1,003,846	$4,031,686
1891	93,996	699,798	2,384,176
1892	214,738	1,095,845	6,565,461
1893	224,381	881,804	3,823,897
1894	211,215	1,016,397	2,299,006
1895	47,420	1,522,100	4,856,517
1896	70,353	1,868,353	5,585,783
1897	43,276	2,172,199	7,613,500
1898	82,504	2,033,845	8,851,878
1899	66,899	1,997,649	7,757,235
1900	63,448	2,545,451	11,486,172
1901	71,597	2,716,269	10,607,908
1902	94,323	2,153,050	8,415,103
1903	66,757	4,215,034	17,558,119
1904	115,490	4,317,910	20,348,299
1905	71,868	2,253,638	15,297,391
1906	89,872	1,727,943	14,857,272
1907	104,663	2,246,384	17,206,267
1908	137,929	2,360,360	13,965,840
1909	77,746	2,104,624	16,079,227
1910	176,474	2,119,210	18,504,591
1911	205,643	2,792,281	23,893,663
1912	136,870	3,812,304	30,354,700
1913	181,749	2,893,395	36,345,517

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ALMONDS.

(Duty, 3 cents per pound; shelled, 4 cents per pound.)

Year	California crop, pounds	Imported	
		Pounds	Value
1890	250,000	5,715,858	$813,278
1891	500,000	6,812,061	931,007
1892	1,066,000	7,629,392	1,028,671
1893	720,000	6,679,147	938,054
1894	2,125,000	7,436,784	769,453
1895	1,850,000	7,903,375	810,439
1896	3,210,000	7,789,681	763,594
1897	4,750,000	9,644,338	880,263
1898	900,000	5,746,362	659,659
1899	4,640,000	9,957,427	1,222,587
1900	5,480,000	6,317,633	949,083
1901	3,000,000	5,140,232	946,138
1902	6,540,000	9,868,982	1,240,886
1903	6,400,000	8,142,164	1,337,717
1904	1,600,000	9,838,852	1,246,474
1905	4,250,000	11,745,081	1,520,063
1906	1,800,000	15,009,326	1,825,475
1907	1,850,000	14,233,613	2,331,816
1908	6,000,000	17,144,968	2,410,648
1909	3,500,000	11,029,421	1,852,523
1910	6,800,000	18,556,356	3,153,645
1911	3,400,000	15,552,712	2,896,573
1912	6,000,000	17,231,458	3,253,495
1913	2,200,000	*15,670,558	3,344,658

Practically all almonds are imported from Spain, Italy and France.

*Of the above quantity imported, 13,078,771 pounds were shelled and 3,591,787 pounds unshelled.

WALNUTS.

(Duty on imported walnuts, unshelled, 2 cents per pound; shelled, 4 cents.)

Year	California crop, pounds	Imported	
		Pounds	Value
1890	2,000,000		
1891	2,124,000		
1892	2,950,000		
1893	2,866,000		
1894	5,805,000		
1895	4,620,000		
1896	8,230,000		
1897	7,970,000		
1898	11,300,000		
1899	11,160,000		
1900	10,860,000		
1901	13,800,000		
1902	17,140,000		
1903	11,000,000	12,362,567	$1,106,033
1904	15,180,000	23,670,761	1,729,378
1905	11,500,000	21,684,104	1,469,463
1906	12,250,000	24,917,028	2,193,653
1907	14,000,000	32,597,592	2,969,649
1908	18,000,000	28,887,110	2,765,486
1909	17,000,000	26,157,703	2,409,644
1910	15,000,000	33,641,466	3,538,264
1911	22,000,000	33,619,434	4,471,227
1912	19,500,000	37,213,674	4,069,515
1913	22,378,354	*26,662,441	3,499,981

Years for which no figures are given are included in "Other nuts."

*Of the above number imported 16,291,313 pounds were unshelled, and 10,371,128 shelled.

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IMPORTED NUTS.

(Duty on imported peanuts, unshelled, ⅜ of 1 per cent per pound; shelled, ⅝ of 1 per cent per pound; all others (except almonds, peanuts and walnuts) 1 cent per pound.)

Year	Peanuts and other ground nuts		Miscellaneous nuts, value	Total all nuts, croup
	Pounds	Value		
1890			$800,376	$2,437,767
1891			1,115,978	2,997,456
1892			822,255	2,792,846
1893			951,941	2,744,741
1894			631,759	2,187,989
1895			730,411	2,012,844
1896			868,799	2,075,132
1897			848,511	2,200,161
1898			1,002,344	2,237,938
1899			879,166	2,727,542
1900			1,326,804	2,978,834
1901			1,518,484	3,268,855
1902			1,971,072	4,044,341
1903			1,514,406	4,866,398
1904			1,523,462	5,471,166
1905			2,082,344	6,158,343
1906			2,055,557	7,373,425
1907			2,100,274	9,742,883
1908			1,790,375	9,643,943
1909			1,717,374	8,664,253
1910	29,276,235	$1,234,088	1,218,052	13,246,742
1911	18,834,441	765,033	1,254,943	14,498,413
1912	15,558,038	575,282	858,837	15,827,988
1913	18,756,422	769,666	977,161	13,965,569

In 1913 the unshelled peanuts imported amounted to 12,281,580 pounds, and the shelled to 6,474,842 pounds.

EXPORTS OF DOMESTIC NUTS.

Year	Peanuts		Other nuts, value	Total nuts, value
	Pounds	Value		
1890				$27,861
1891				50,617
1892				60,684
1893				94,902
1894				125,233
1895				115,274
1896				93,283
1897				125,805
1898				161,432
1899				140,250
1900				156,490
1901				218,743
1902				304,241
1903				299,558
1904				330,366
1905				309,195
1906*	7,180,163	$275,927	$140,959	416,886
1907	6,386,012	278,236	103,929	382,165
1908	5,503,685	283,819	89,205	373,024
1909	5,501,107	242,569	246,284	488,853
1910	4,484,613	224,779	156,284	381,063
1911	5,447,185	276,651	328,151	604,802
1912	5,920,711	305,465	303,473	608,938
1913	7,301,381	366,016	367,569	733,585

*Prior to 1906 peanuts were not shown separately in the customs returns.

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TABLE XXX.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

Counties	Apples		Apricots		Cherries	
	Number of trees	Bushels	Number of trees	Bushels	Number of trees	Bushels
Alameda	26 045	38,346	270,461	399,035	89,284	89,662
Alpine	1,140	642	7		63	2
Amador	8,592	11,990	1,197	949	1,143	1,588
Butte	34,425	42,671	9,900	11,126	4,317	4,403
Calaveras	13,341	21,583	672	465	459	329
Colusa	3,067	4,507	4,420	3,323	223	228
Contra Costa	13,429	18,494	38,812	19,906	7,258	5,139
Del Norte	3,234	3,110			48	38
El Dorado	31,929	26,529	503	786	3,259	3,051
Fresno	32,097	34,505	186,823	206,536	2,729	104
Glenn	4,617	4,909	6,830	2,310	78	48
Humboldt	73,010	1,552,585	235	267	3,733	5,040
Imperial	86	3	1,922	673		
Inyo	19,611	35,430	342	416	539	331
Kern	7,725	10,006	33,573	48,955	163	64
Kings	4,196	8,507	124,007	234,147	11	205
Lake	22,254	18,537	1,463	536	590	764
Lassen	12,679	10,349	70	17	439	61
Los Angeles	101,433	118,528	122,769	181,079	795	168
Madera	20,576	11,227	9,408	6,188	40	20
Marin	15,995	6,907	1,689	633	165	111
Mariposa	16,601	29,141	233	415	120	216
Mendocino	63,263	112,856	187	305	1,181	1,576
Merced	8,941	7,267	7,381	4,263	343	64
Modoc	28,969	60,202	652	788	963	1,033
Mono	1,088	850	6	1	197	190
Monterey	290,404	501,847	27,996	36,067	1,729	723
Napa	41,301	47,216	16,953	16,273	16,955	20,895
Nevada	20,223	25,800	193	133	1,727	1,810
Orange	11,992	12,218	129,352	328,931	23	9
Placer	42,704	26,848	4,092	1,023	31,209	67,429
Plumas	3,534	1,391	18		65	10
Riverside	10,577	9,977	83,069	145,159	982	765
Sacramento	10,948	18,235	10,480	9,951	17,173	33,729
San Benito	26,593	31,385	61,694	106,806	3,421	1,761
San Bernardino	55,150	79,077	111,125	171,763	3,057	2,928
San Diego	37,662	45,687	20,858	33,001	1,792	1,729
San Francisco	40	230				
San Joaquin	5,053	7,019	53,007	27,474	21,590	13,669
San Luis Obispo	35,006	56,047	20,123	25,929	702	463
San Mateo	18,634	31,317	3,694	1,259	671	228
Santa Barbara	2,744	38,511	15,512	29,237	659	238
Santa Clara	102,841	118,603	783,585	958,163	173,002	90,198
Santa Cruz	647,136	2,090,968	63,021	95,042	17,608	25,368
Shasta	35,440	47,556	839	2,141	2,785	2,311
Sierra	3,398	4,895			67	114
Siskiyou	31,055	19,521	366	363	1,850	1,478
Solano	4,862	6,857	310,262	180,011	53,923	52,512
Sonoma	386,740	818,725	9,067	10,374	43,927	58,710
Stanislaus	3,680	1,693	20,451	14,122	1,182	380
Sutter	5,433	7,806	5,986	3,443	1,249	967
Tehama	15,633	16,256	30,446	26,128	624	321
Trinity	4,272	4,951	41	33	247	205
Tulare	25,261	28,241	48,834	56,042	316	290
Tuolumne	13,544	16,558	162	120	144	118
Ventura	15,179	19,170	219,836	562,978	392	1,047
Yolo	2,512	3,654	117,228	101,396	4,534	5,908
Yuba	5,468	7,133	1,481	342	559	265
Totals	2,482,762	6,335,073	2,992,453	4,066,823	522,304	501,013

*For the number of bearing trees in orchard fruits in 1890 and 1900, see Report for 1912, pages 162-164.

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TABLE XXX—Continued.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

Counties	Peaches and nectarines		Pears	
	Number of trees	Bushels	Number of trees	Bushels
Alameda	12,555	14,561	70,382	99,994
Alpine	28	40	79	36
Amador	16,349	20,606	5,112	4,430
Butte	255,047	356,683	22,159	25,318
Calaveras	5,954	6,794	2,178	5,358
Colusa	4,075	3,372	2,432	1,906
Contra Costa	39,461	38,525	68,088	75,803
Del Norte	42	32	129	154
El Dorado	61,800	58,738	49,672	36,848
Fresno	2,277,314	2,727,978	13,356	7,548
Glenn	6,420	3,175	1,655	1,500
Humboldt	9,471	10,552	3,804	8,196
Imperial	432	228	347	11
Inyo	4,602	5,037	2,668	2,676
Kern	35,149	30,278	1,057	1,065
Kings	777,697	803,637	4,379	8,007
Lake	9,288	8,336	39,075	39,871
Lassen	1,455	1,753	632	479
Los Angeles	160,197	234,581	16,149	21,161
Madera	40,989	20,996	1,185	1,164
Marin	6,313	3,092	4,151	8,979
Mariposa	1,618	1,803	701	1,528
Mendocino	6,928	10,031	15,829	23,666
Merced	134,991	90,954	5,704	2,624
Modoc	2,113	1,866	1,888	3,334
Mono	91	61	123	122
Monterey	7,381	8,693	5,194	8,061
Napa	71,080	65,843	50,210	81,812
Nevada	17,873	22,488	36,800	26,279
Orange	12,461	13,104	2,100	2,973
Placer	683,824	1,084,566	142,999	115,950
Plumas	184	35	261	112
Riverside	72,933	77,138	18,447	13,424
Sacramento	99,635	129,961	161,094	308,352
San Benito	12,301	25,132	12,409	22,908
San Bernardino	197,763	246,049	2,302	3,421
San Diego	29,800	29,530	6,023	7,585
San Francisco	120	125		
San Joaquin	185,073	229,175	13,664	13,096
San Luis Obispo	10,614	10,325	5,097	8,869
San Mateo	572	643	1,688	1,923
Santa Barbara	9,560	11,337	2,612	5,148
Santa Clara	437,677	574,514	142,550	206,214
Santa Cruz	11,868	10,873	23,100	33,456
Shasta	98,950	110,712	33,952	64,803
Sierra	157	83	148	414
Siskiyou	4,371	3,779	2,300	2,164
Solano	341,266	474,444	182,194	319,303
Sonoma	237,220	165,396	109,965	128,421
Stanislaus	154,553	89,385	4,158	1,804
Sutter	149,057	287,894	17,911	32,754
Tehama	260,204	276,049	141,584	26,992
Trinity	886	873	738	1,468
Tulare	714,494	622,373	6,483	4,948
Tuolumne	3,065	2,063	1,056	2,004
Ventura	8,943	15,630	2,597	3,776
Yolo	116,003	219,660	38,115	71,897
Yuba	8,744	5,517	10,220	25,993
Totals	7,829,011	9,267,118	1,410,905	1,928,097

*For the number of bearing trees in orchard fruits in 1890 and 1900, see Report for 1912, pages 162-164.

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TABLE XXX—Continued.

ORCHARD FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

Counties	Plums and prunes		Total	
	Number of trees	Bushels	Number of trees	Bushels
Alameda	157,981	157,270	627,824	799,976
Alpine	214	42	1,531	762
Amador	10,685	11,880	43,332	51,757
Butte	104,474	252,141	452,302	693,210
Calaveras	8,265	9,901	31,276	44,963
Colusa	57,468	111,658	71,796	125,122
Contra Costa	58,177	54,831	225,939	213,351
Del Norte	96	222	3,549	3,556
El Dorado	32,764	23,327	180,017	149,543
Fresno	66,926	139,252	2,579,859	3,116,325
Glenn	24,860	8,559	44,565	20,613
Humboldt	26,950	12,161	117,368	1,589,053
Imperial	347	3	3,170	926
Inyo	2,349	1,845	30,164	45,760
Kern	58,075	74,053	136,088	164,626
Kings	132,192	258,851	1,048,506	1,315,117
Lake	47,244	54,807	120,037	122,945
Lassen	2,223	1,069	17,511	13,731
Los Angeles	43,592	34,295	446,698	590,929
Madera	7,570	435	80,156	40,077
Marin	3,775	2,625	32,263	22,420
Mariposa	762	1,168	19,461	34,283
Mendocino	37,197	63,356	125,282	212,320
Merced	5,401	3,437	163,013	108,843
Modoc	3,182	4,660	37,776	71,883
Mono	86	10	1,595	1,234
Monterey	6,189	4,122	339,105	559,680
Napa	299,613	407,023	497,391	639,976
Nevada	6,955	7,055	84,259	84,046
Orange	4,569	5,295	160,667	362,981
Placer	279,766	323,731	1,190,074	1,673,123
Plumas	510	161	4,574	1,709
Riverside	34,357	54,873	220,723	301,498
Sacramento	206,553	269,547	506,961	772,257
San Benito	91,066	223,443	207,537	411,477
San Bernardino	8,779	6,473	379,533	509,989
San Diego	16,022	8,204	112,993	126,427
San Francisco	945	575	1,105	930
San Joaquin	83,641	102,991	364,290	395,038
San Luis Obispo	21,383	15,236	93,217	117,126
San Mateo	18,279	14,686	43,655	50,130
Santa Barbara	2,730	4,822	34,200	89,858
Santa Clara	3,387,455	3,854,070	5,043,766	5,807,595
Santa Cruz	112,269	109,959	875,642	2,366,344
Shasta	87,959	159,696	262,136	387,566
Sierra	232	262	4,002	5,768
Siskiyou	5,683	4,405	45,708	31,735
Solano	465,341	714,730	1,357,911	1,747,916
Sonoma	569,232	596,953	1,364,105	1,784,301
Stanislaus	6,095	3,492	190,515	111,304
Sutter	65,723	136,082	244,587	469,829
Tehama	92,459	133,024	441,070	478,915
Trinity	1,083	1,329	7,313	8,906
Tulare	264,337	639,586	1,059,830	1,351,573
Tuolumne	1,404	1,302	19,554	22,254
Ventura	12,541	15,755	259,682	618,490
Yolo	119,198	214,792	397,748	617,448
Yuba	3,487	2,447	30,264	41,998
Totals	7,168,705	9,317,979	22,485,195	31,501,507

*For the number of bearing trees in orchard fruits in 1890 and 1900, see Report for 1912, pages 162-164.

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TABLE XXXI.

TROPICAL FRUITS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

Counties	Figs		Olives		Lemons	
	Number of trees	Pounds	Number of trees	Pounds	Number of trees	Boxes
Alameda	482	9,990	10,963	45,285	660	2,144
Alpine			4	50		
Amador	347	24,315	274	2,600	8	12
Butte	9,518	337,725	73,453	2,242,445	2,223	1,222
Calaveras	1,839	142,990	4,065	10,465	19	37
Colusa	1,391	60,577	336	5,716	199	148
Contra Costa	293	16,235	9,744	340,410	148	92
Del Norte	1					
El Dorado	587	74,060	37	4,020		
Fresno	120,124	15,898,146	72,788	655,302	12,389	10,083
Glenn	879	63,235	445	14,290	593	432
Humboldt	82	2,430				
Imperial	606	10,450	41		36	4
Inyo	14	400				
Kern	1,475	92,990	393	2,950	54	37
Kings	391	26,720	5	400		
Lake	1,062	41,896	3,198	7,390	8	
Lassen						
Los Angeles	5,736	397,376	84,934	1,549,419	219,149	704,301
Madera	4,321	82,290	18,010	38,035	15	16
Marin	201	1,065	48	150	26	25
Mariposa	461	135,455	2,711	2,452	35	50
Mendocino	358	25,125	7	100		
Merced	9,837	793,495	6,981	90,916	209	217
Modoc						
Mono						
Monterey	217	9,146	657	2,622	7	
Napa	1,234	20,889	20,176	36,885	258	86
Nevada	1,468	67,225	419	4,273	6	
Orange	1,066	25,123	67,046	828,204	46,954	74,227
Placer	4,463	105,802	26,396	417,415	714	683
Plumas	6		6			
Riverside	2,054	73,796	80,572	1,281,970	115,020	304,683
Sacramento	1,145	54,450	34,077	969,962	2,500	1,636
San Benito	128	4,615	4		5	4
San Bernardino	1,144	33,790	30,190	486,478	157,731	630,108
San Diego	2,459	94,323	109,871	2,559,792	195,318	473,543
San Francisco			1			
San Joaquin	4,037	232,063	19,998	506,268	75	58
San Luis Obispo	819	43,317	1,597	28,877	955	1,475
San Mateo	36	525	7,187	141,006	1	1
Santa Barbara	853	40,255	44,258	1,275,022	46,181	134,168
Santa Clara	985	31,500	13,945	639,227	996	1,201
Santa Cruz	333	12,845	1,243	2,500	349	233
Shasta	2,306	53,270	9,616	7,541	7	1
Sierra						
Siskiyou	3	10			2	
Solano	4,598	497,159	1,221	34,874	126	163
Sonoma	3,850	98,105	10,863	54,490	396	235
Stanislaus	37,676	397,675	5,458	129,384	576	262
Sutter	4,675	447,470	3,018	170,581	602	641
Tehama	3,176	115,472	17,373	394,449	356	354
Trinity	20	255			2	
Tulare	15,750	1,037,350	5,605	89,921	41,069	65,466
Tuolumne	237	17,435	10		6	
Ventura	618	29,653	25,961	686,171	95,018	347,804
Yolo	10,476	1,128,670	4,482	307,395	183	222
Yuba	3,159	81,200	6,660	64,710	109	147
Totals	269,001	22,990,353	836,347	16,132,412	941,293	2,756,221

*For the number of bearing trees of tropical fruits in 1890 and 1900, see Report for 1912, pages 165-167.

NOTE.—The production being in pounds and citrus fruits in boxes, the total production for each county can not be given.

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TABLE XXXI—Continued.

TROPICAL FRUITS BY COUNTIES.

Number of Bearing Trees in 1910, and Production.

Counties	Oranges		Pomeloes		Total trees
	Number of trees	Boxes	Number of trees	Boxes	
Alameda	3,782	6,074	4	2	15,900
Alpine					4
Amador	151	283			780
Butte	147,412	128,108	122	171	235,442
Calaveras	388	544	3	2	6,315
Colusa	1,537	2,970	70	147	3,537
Contra Costa	402	453			10,597
Del Norte					1
El Dorado	53	195			677
Fresno	85,781	92,640	346	431	291,754
Glenn	4,860	1,704	5	13	6,783
Humboldt	1				83
Imperial	1,410	3,012	18	1	2,411
Inyo					14
Kern	80,940	32,232	16	7	82,888
Kings	24	31			425
Lake	72	13			4,340
Lassen					
Los Angeles	1,674,695	4,124,161	6,853	11,810	1,994,402
Madera	184	114	2		22,532
Marin	79	147	5	9	387
Mariposa	1,169	1,691	1	1	4,378
Mendocino	4	3			370
Merced	1,572	1,097	11	2	18,613
Modoc					
Mono					
Monterey	29	25			913
Napa	1,192	535	9	21	23,251
Nevada	364	320	2		2,311
Orange	478,272	1,247,905	677	2,612	597,383
Placer	26,921	14,103	289	411	59,906
Plumas					12
Riverside	1,021,957	2,006,902	4,477	16,408	1,224,217
Sacramento	46,256	61,517	864	1,278	84,863
San Benito	42	10			179
San Bernardino	1,951,254	5,425,759	13,134	60,149	2,153,501
San Diego	107,457	167,201	5,764	12,950	425,260
San Francisco					1
San Joaquin	1,950	1,854	2		26,070
San Luis Obispo	794	1,225	75	49	4,253
San Mateo	25	9			7,249
Santa Barbara	4,246	12,272	716	931	99,023
Santa Clara	1,905	1,354	57	9	18,023
Santa Cruz	330	151	7	6	2,279
Shasta	55	39			11,986
Sierra					
Siskiyou					6
Solano	2,950	2,737	15		8,911
Sonoma	5,047	4,209	8	4	20,226
Stanislaus	10,492	8,087	18	1	54,291
Sutter	2,427	3,335	18	14	10,741
Tehama	10,744	7,975	5	4	31,654
Trinity					22
Tulare	801,151	758,465	8,114	13,551	872,657
Tuolumne	114	122			367
Ventura	131,681	310,239	392	909	253,754
Yolo	2,371	2,949	1,325	612	18,858
Yuba	1,263	1,409			11,205
Totals	6,615,805	14,436,180	43,424	122,515	8,726,005

NOTE.—The production being in pounds, and citrus fruits in boxes, the total production for each county cannot be given.

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TABLE XXXII.

GRAPES AND NUTS BY COUNTIES.*

Number of Vines and Bearing Trees in 1910, and Production.

Counties	Grapes		Almonds		Pecans	
	Number of vines bearing	Production, pounds	Number of trees	Pounds	Number of trees	Pounds
Alameda	2,390,959	20,671,600	21,190	155,871	5	80
Alpine	9,000	56,000	12	75		
Amador	314,604	2,743,320	628	3,931	1	50
Butte	258,742	1,499,000	84,069	799,351	158	5,450
Calaveras	212,300	1,457,030	14,624	27,080	6	
Colusa	482,417	5,010,240	16,078	90,479	10	340
Contra Costa	2,972,130	32,217,131	209,056	830,112	25	200
Del Norte					3	
El Dorado	581,342	4,891,740	438	3,850		
Fresno	40,687,207	611,253,961	7,390	56,472	56	225
Glenn	20,416	145,300	25,739	61,055	15	350
Humboldt	4,095	76,405	304	580		
Imperial	298,813	1,210,475	29			
Inyo	39,478	292,730	28	1,080	9	150
Kern	419,582	1,715,540	3,101	23,505	563	1,290
Kings	4,538,732	91,434,166	1,721	37,040	2	40
Lake	296,752	1,750,522	8,281	47,316	6	350
Lassen	31	800	8			
Los Angeles	4,923,877	44,846,307	76,949	57,770	313	6,400
Madera	1,530,630	21,105,970	2,778	7,975	5	
Marin	115,198	1,982,560	151	1,112		
Mariposa	28,647	285,740	159	1,918		
Mendocino	924,191	6,471,050	229	4,260		
Merced	1,281,342	12,085,751	17,132	114,499	31	200
Modoc	795	7,100				
Mono	2,000	20,000				
Monterey	79,935	754,340	2,196	24,050	3	100
Napa	8,595,338	66,876,897	18,731	90,783	996	
Nevada	94,338	757,865	1,325	11,980	10	40
Orange	282,682	2,684,855	1,248	70	26	1,350
Placer	1,340,132	11,231,830	11,539	64,431	2	
Plumas						
Riverside	1,570,794	12,133,389	21,789	168,570	98	3,520
Sacramento	7,627,510	399,386,705	66,372	335,257	3	100
San Benito	177,976	1,620,030	6,958	73,922	6	100
San Bernardino	5,987,127	38,608,263	634	15,479		
San Diego	1,228,858	15,204,430	9,279	40,521	1,080	19,205
San Francisco	3,000	10,000				
San Joaquin	13,371,794	175,879,915	97,024	547,300	6	250
San Luis Obispo	265,481	1,937,110	9,281	46,990	1	
San Mateo	124,990	695,440	94	425		
Santa Barbara	208,595	590,485	239	3,150	70	130
Santa Clara	5,584,480	41,129,250	25,862	198,186	136	1,000
Santa Cruz	1,365,414	7,315,935	240	1,855	5	
Shasta	117,481	643,463	8,056	43,210	7	100
Sierra						
Siskiyou	2,473	44,507	83	2,611	2	
Solano	1,213,265	16,276,990	98,276	650,933	134	2,175
Sonoma	17,939,972	137,556,285	2,893	11,279	43	220
Stanislaus	1,932,302	18,595,445	33,726	118,198	25	760
Sutter	1,249,923	25,162,300	61,572	343,084	11	
Tehama	1,307,218	16,416,690	32,919	219,396	10	
Trinity	2,842	57,950	30	5	1	
Tulare	7,227,491	95,037,424	1,977	59,822	26	505
Tuolumne	95,811	580,502	54	200	1	
Ventura	36,398	505,892	12,057	166,180	301	
Yolo	2,568,019	26,109,390	149,019	1,109,760	9	245
Yuba	162,751	2,652,510	3,163	19,535	6	30
Totals	144,097,670	1,979,686,525	1,166,730	6,692,513	4,226	44,955

*For the number of grape vines and bearing trees in nuts in 1890 and 1900, see Report of 1912, pages 167-169.

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TABLE XXXII—Continued.

NUTS BY COUNTIES.*

Number of Bearing Trees in 1910, and Production.

Counties	Walnuts		Total nuts	
	Number of trees	Pounds	Number of trees	Pounds
Alameda	3,726	46,183	25,250	210,142
Alpine			12	75
Amador	185	3,266	830	7,602
Butte	1,063	22,906	85,445	832,019
Calaveras	832	22,117	15,619	51,932
Colusa	1,306	13,463	17,409	105,782
Contra Costa	6,148	110,088	215,249	941,400
Del Norte	3		6	
El Dorado	880	10,855	1,512	27,130
Fresno	634	7,991	8,203	70,097
Glenn	220	3,617	26,336	67,707
Humboldt	498	8,220	827	8,975
Imperial	24	400	53	400
Inyo	35	940	72	2,170
Kern	127	1,565	3,819	26,615
Kings	24	1,215	1,747	38,295
Lake	564	5,232	8,920	55,198
Lassen	8	250	16	250
Los Angeles	281,837	6,138,033	359,349	6,204,703
Madera	14	560	2,797	8,535
Marin	61	385	212	1,497
Mariposa	91	2,019	262	4,270
Mendocino	360	9,990	762	33,040
Merced	633	11,538	17,845	127,357
Modoc	3	80	27	535
Mono				
Monterey	306	3,287	2,505	27,437
Napa	7,767	44,164	27,622	135,747
Nevada	1,105	13,811	2,768	32,048
Orange	276,842	7,478,955	278,879	7,492,175
Placer	535	3,276	12,122	69,065
Plumas	4		4	
Riverside	3,040	67,491	24,940	239,581
Sacramento	755	21,682	67,156	357,539
San Benito	1,369	29,800	8,333	103,822
San Bernardino	2,228	43,777	2,900	60,742
San Diego	9,159	194,829	19,651	259,730
San Francisco				
San Joaquin	2,455	6,548	99,499	554,098
San Luis Obispo	7,871	223,493	17,264	277,783
San Mateo	223	2,010	331	2,435
Santa Barbara	96,776	2,678,039	97,091	2,681,694
Santa Clara	19,070	227,955	48,398	469,926
Santa Cruz	4,015	25,880	4,757	40,640
Shasta	1,168	14,380	9,339	64,760
Sierra	24	1,260	24	1,260
Siskiyou	30	275	185	5,046
Solano	1,806	27,636	100,239	681,194
Sonoma	11,955	144,040	16,631	168,151
Stanislaus	864	10,995	34,701	134,103
Sutter	671	7,130	62,289	350,214
Tehama	1,569	13,500	34,555	237,596
Trinity	58	1,510	91	1,560
Tulare	1,942	28,612	3,945	88,939
Tuolumne	175	6,465	240	6,840
Ventura	98,622	3,665,935	110,984	3,832,116
Yolo	1,270	19,953	150,822	1,151,868
Yuba	287	4,665	3,458	24,280
Totals	853,237	21,432,266	2,034,302	28,378,115

*For the number of grape vines and bearing trees in nuts in 1890 and 1900, see Report of 1912, pages 167-169.

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TABLE XXXIII.

SMALL FRUITS BY COUNTIES.

Number of Acres in 1910, and Production.

Counties	Strawberries		Blackberries and dewberries		Total	
	Acres	Quarts	Acres	Quarts	Acres	Quarts
Alameda	18	41,770	12	20,225	401	890,867
Alpine						1,510
Amador	6	9,259	13	18,655	29	46,124
Butte	48	54,513	57	76,793	148	207,794
Calaveras	5	11,210	14	13,366	34	37,948
Colusa	1	2,120	5	7,039	7	12,564
Contra Costa	1	2,880	3	2,774	6	13,654
Del Norte	1	1,050		300	1	1,760
El Dorado	5	8,215	11	12,480	23	31,427
Fresno	148	750,708	91	247,186	310	1,196,643
Glenn	2	2,945	4	8,980	8	15,005
Humboldt	58	152,758	4	5,757	87	219,489
Imperial			1	1,426	1	1,726
Inyo	5	5,591	8	9,835	21	18,621
Kern	2	2,112	26	24,900	34	32,087
Kings	15	53,810	13	33,260	31	94,940
Lake	6	12,227	15	15,261	25	33,910
Lassen	3	3,380	2	2,354	20	14,889
Los Angeles	1,380	5,135,203	280	1,019,735	1,975	7,837,987
Madera	2	1,750	3	1,380	7	4,270
Marin	1	1,750		380	3	5,130
Mariposa	1	1,217	2	4,470	7	8,705
Mendocino	22	35,296	14	11,900	57	69,492
Merced	5	8,377	21	25,230	34	47,293
Modoc	9	10,113	9	11,515	37	44,168
Mono		1,220		48	1	5,011
Monterey	263	2,449,064	56	268,180	407	3,663,576
Napa	22	45,316	26	18,903	59	72,503
Nevada	4	7,047	15	29,245	55	78,369
Orange	76	192,365	43	71,907	205	401,218
Placer	433	1,062,214	62	198,039	582	1,581,263
Plumas	6	6,828	1	584	13	11,881
Riverside	27	59,305	28	49,554	64	123,772
Sacramento	450	1,676,826	52	143,729	554	1,974,178
San Benito	35	34,367	1	4,310	54	68,426
San Bernardino	34	52,917	68	112,255	130	190,564
San Diego	43	275,744	22	45,635	87	369,546
San Francisco						
San Joaquin	33	93,367	31	51,650	92	226,154
San Luis Obispo	45	61,895	30	42,845	137	131,117
San Mateo	56	210,850	10	15,030	69	232,655
Santa Barbara	24	125,766	32	99,084	63	233,123
Santa Clara	460	989,600	228	304,022	1,011	1,785,865
Santa Cruz	489	1,384,784	116	163,757	744	1,707,208
Shasta	44	51,975	32	35,067	95	112,667
Sierra	2	2,623	1	964	6	5,997
Siskiyou	7	15,011	10	11,057	31	41,053
Solano	5	11,060	5	5,560	12	19,110
Sonoma	103	195,330	930	1,413,936	1,471	2,106,103
Stanislaus	95	184,399	53	84,073	161	290,431
Sutter	1	1,550	7	8,008	16	24,186
Tehama	36	57,921	7	11,163	49	83,593
Trinity	5	4,668	5	4,307	15	14,039
Tulare	19	44,078	70	87,262	119	181,574
Tuolumne	5	10,652	8	9,729	19	29,153
Ventura	14	72,350	7	18,566	31	138,600
Yolo	1	210	6	6,162	10	10,774
Yuba	4	4,750	6	8,692	19	22,408
Totals	4,585	15,694,326	2,576	4,898,524	9,687	26,824,120

NOTE.—The totals include other fruits, for which see page 111.

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PART V.

CALIFORNIA WINE INDUSTRY.

Sweet Wines in Other States, California Vineyards, Sparkling Wines, Grape Juice, Price of Wine Grapes, Imports and Exports of Wine and Brandy, California Brandies, Vintages 1891-1913.

The California wine industry, with its extensive vineyards of wine grapes and enormous investments of capital, has attained such proportions as to demand special notice. In sweet wines the production has more than doubled within the last ten years, and the output is much greater than that of all other states combined.*

The State Board of Viticultural Commissioners estimates that more than half the acreage of vineyards in the State is planted to wine grapes, the area being about 170,000 acres. It also estimates the amount paid to growers by the wineries in 1913 at $6,000.000.

Production of Sweet Wines in the United States in 1913.

State	Gallons
New Jersey, port	8,045
New York, port, 175,279; sweet catawba, 462,510	637,789
North Carolina, Scuppernong	92,031
Virginia, Scuppernong	581,672
Total	1,319,537
California total	17,927,812

In the production of wine previous to 1891, it is not possible to arrive at the totals for each year as given in the census reports, owing to different classification. The wines made in wineries are included in separate returns under the head of "manufactures," and the value of the product, instead of the quantity, is stated. The figures are as follows:

Wine Made in Wineries.

Year	Establishments	Capital	Cost of material	Value of product
1860	11	$173,000	$53,030	$160,300
1870	139	658,420	203,631	602,553
1880	45	639,600	292,075	622,087
1890	128	3,729,413	840,222	1,738,863
1900	187	4,658,625	2,526,768	3,937,871
1910	181	----------	----------	8,936,848

*For the early history of wine production in California, see Report of 1912, pages 170-172.

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For 1900, the following additional figures are given in the census reports:

Pounds of grapes used	320,398,267
Cost	$2,160,655
Still wine, gallons	19,019,378
Value	$3,817,582
Effervescing wine, gallons	8,880
Value	$27,220

NOTE.—Only 169,055 gallons of effervescing wine were made in the United States in 1900.

Great Wine Grape Vineyards.

Some of the California vineyards are now the largest and best cultivated in the world. In the southern part of the State there is the large vineyard of the Italian Vineyard Company, in San Bernardino County, comprising 3,547 acres of all the best varieties, including Alicante Bouchet, Zinfandels, Burger, Folle Blanche, and a dozen others. In central California there is the Wahtoke vineyard, near Reedley, in Fresno County, of 3,631 acres, with 2,500 acres already planted and in bearing and containing some twenty of the leading avrieties; and in northern California there is the Vina vineyard, in Tehama County, with 1,500 acres, mostly in Zinfandel and Burger. These are the most important vineyards in the State.

Largest Wine Producing Countries.

The largest wine producers and consumers in the world are France and Italy, in Europe, and Argentina, in South America. The total area under wine grapes in Italy is over 11,000,000 acres; in France about 4,000,000 acres, and in Germany about 280,000 acres. The Argentina vintage in 1912, according to the Minister of Agriculture, was 107,800,000 gallons, produced from 1,345,000,000 pounds of grapes. The bulk of this enormous output, as in France and Italy, is consumed at home.

Area of Vineyards and Production of Wine in Specified Countries, 1911-1912.

(From a report of the International Institute of Agriculture.)

Country	Area		Production (wine)	
	1912, acres	1911, acres	1912, gallons	1911, gallons
Italy	11,008,305	11,063,161	1,162,348,000	1,126,793,360
France	4,148,663	4,156,501	1,567,559,288	1,185,740,254
Spain	3,123,356	3,187,533	369,838,000	389,572,846

Consumption of Wine and Other Liquors.

The production of wine, both in quantity and quality, varies considerably from year to year in all countries, grapes depending more than almost any other crop upon weather conditions. France is the largest producer in the world, followed closely by Italy. In all wine countries the domestic consumption is large, in France amounting to 33 gallons per capita, in Italy 25.1 gallons, and Spain ranks next with rather more than 18 gallons. In English-speaking countries the consumption is very small. The production of wine in the leading foreign countries in Europe is enormous; both France and Italy produce upward of a billion gallons in some years. Much of this is of a very inferior character, and is consumed at home.

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There is no reliable data available regarding the production of the various kinds of dry wine, but since 1890 the exact figures for sweet wines and brandy have been recorded, and are here given, so that a comparison can be made. The quantity of sweet wine has increased during the last twenty years from 1,083,000 gallons in 1891 to 23,467,000 in 1912 (Aug.-Dec. 1911), which is by far the heaviest in the history of the industry. Owing to the dry season the quantity was only 17,927,812 for 1913.

Port and sherry are the two leading wines, the former leading as a rule, but in some years the output of sherry comes to the front, as in 1903 and 1912, when it was upwards of 8,000,000 gallons. In the three years 1910-1912 the output of port was upwards of 9,000,000 gallons. Muscatel and Angelica are the next favorites, followed by Malaga and Tokay.

The imports of foreign wines have remained steady during the last few years, the value being about $10,000,000 anually.

It is acknowledged that the best wines of California and of South America are equal to those produced in Europe. California grows the principal wine grapes of France, Italy, Spain, Portugal and Germany, and the variety of types of wines produced is unequaled by any country in the world. Conditions suitable for the growth of any variety, including the American varieties of the eastern states, are found here.

Surplus table and shipping grapes are used for the manufacture of wine, but the qualities desirable in a shipping grape differ from those of a good wine grape and the product is inferior. They are more suitable for making brandy, which is their principal use. Surplus raisin grapes are used for the same purposes, but the quality is somewhat better. Large quantities of sweet wine and brandy are made from the Muscat of Alexandria and form a special type of their own.

The great bulk of all the dry and sweet wines and of brandy is made from a special wine grape which is unsuited for other purposes.

Wine Districts of California.

It is usual to classify the wine-producing areas of California into "Dry wine districts" and "Sweet wine districts." Those included in the former are situated principally in the valleys and hills of the counties of the Coast Range, from Mendocino to San Diego. The great central valleys of Sacramento and San Joaquin, from Shasta to Kern, constitute the latter. While this classification corresponds fairly accurately with the practice of the wine-makers and with the nature of their actual products, it is not quite logical, as both sweet and dry wines can be made in nearly all, if not all, the grape-growing districts of California, and if justified by the demand of the market, all the wine grapes of California could be used for the manufacture of good dry wine.

A more rational classification would be into fine wine and bulk wine districts. This would be a very difficult classification to make, however, as the areas would not correspond to any geographical districts.

Fine wines are made on the warm, well-drained slopes of the Coast Range, of hills in similar situations in the foothills of the Sierra and in favored locations in valley and plain, where the physical conditions of the soil resemble those of the hill slopes. The quality of the wines may be equal in all these locations, though the character will differ widely, according to the climate and to the variety of grapes grown.

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In the cooler and later parts of the northern and central grape growing regions of the coast counties, the lightest dry wines, resembling the Rhine, Moselle, Champagne and Medoc types are made. In the warmer parts of these same regions and in favored locations in the Sierra foothills and southern California, wines resembling Chablis, Burgundy, Hermitage, Sauternes and the fine wines of Italy are made. By a careful choice of varieties and methods, fine wines of dry Sherry or Madeira type can be made throughout the hotter regions.

Bulk, or cheap wines, can be made anywhere that the soil, water and climate favor the production of large crops. This includes the rich valleys both of the coast and of the interior. The bulk wines of the coast tend to be too high in natural acidity and low in alcohol; those of the interior with abundant alcohol are usually deficient in acidity. These opposite defects are mutually complementary and by judicious blending, either of the grapes before or of the wines after fermentation, good standard wines can be produced very cheaply.

Wine Grapes Used in California.

Practically all the principal wine grapes of Europe have been introduced into California and tested. About four fifths of the wine, both dry and sweet, however, is made from about a dozen varieties, and between forty and fifty will include over 95 per cent of the wine grapes.

The Zinfandel is the typical red wine grape of California and is grown in larger quantities than any other. From it the bulk of dry and sweet red wines is made. The proportion of Zinfandel, however, tends to diminish in newer plantings. Other red wine varieties largely planted are Carignane, Petite Sirah, Mataro, Petit Bouschet, Alicante Bouschet, Grenache, Blue Elbling and Charbono. The commonest white wine grapes are Burger, Colombar, Palomino, Green Hungarian, Feher Szagos and Muscat of Alexandria. Of table and raisin grapes, used largely for wine making, the principal are, besides the Muscat, Flame Tokay, Malaga, Sultanina (Thompson's Seedless) and Verdal.

The fine wines are made principally of Petite Sirah, Colombar and Semillon, though a large number of other fine varieties are used in varying amounts.

The yield of average vineyards varies from one or two tons per acre to eight or ten tons. This difference depends principally on the soil and climate and on the methods of the grape grower. Some varieties have the reputation of being heavy bearers and some of being light. The differences, however, are more those of proper adaptation to conditions and the use of proper viticultural methods. A variety, such as the Semillon, with a reputation as a light bearer, may produce seven or eight tons to the acre, if planted in a suitable location and properly pruned and cultivated. A variety such as the Burger owes its reputation for heavy bearing to the fact that it will bear in almost any location and however unskillfully it is treated. Practically all varieties producing fine wines require great care in selection of cuttings, suitable soil and climate and skilled treatment by the cultivator. Varieties recommended for various purposes in various regions are given below:

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Wine Grapes Recommended for California.

FOR COOLER REGIONS.

Fine wines of Rhine type: Franken Riesling, Johannisberger, Traminer.

Fine wines of Sauterne type: Semillon, Colombar, Sauvignon blanc.

Fine wines of Chablis type: Marsanne, Chardonay, Peverella.

Bulk white wines: Palomino, Green Hungarian.

Fine wines of Medoc type: Cabernet Sauvignon, Beclan, Blue Portuguese, Verdot, Merlot.

Fine wines of Hermitage type: Petite Sirah, Mondeuse, Tannat.

Bulk red wines: Zinfandel, Carignane.

FOR WARMER REGIONS.

Fine white wines: Franken Riesling, Johannisberger, Vernaccia Sarda, Marsanne.

Bulk white wines: Burger, Folle blanche, West's White Prolific.

Fine red wines: Valdepeñas, St. Macaire, Lagrain, Gros Mansenc, Barbera, Refosco.

Bulk red wines: Zinfandel, Alicante Bouschet.

FOR SWEET WINES.

Fine white: Furmint, Beba, Boal.

Bulk white: Palomino, Perruno, Mourisco, Branco.

Fine red: Trousseau, Tinta Madeira.

Bulk red: Grenache, Mission, Monica, California Black Malvoisie, Tinta Amerella, Alicante Bouschet.

Muscat: Muscat of Alexandria, Frontignan.

Some varieties, such as the Riesling, give fine wines, though of different character, wherever they are planted. Others produce a fine wine in one locality and a poor wine in another. The Cabernet Sauvignon produces a fine wine in the cooler regions and a harsh, disagreeable wine in the hot regions. The Valdepeñas produces a better wine in the hot interior than in the coast regions.

Most of the varieties recommended for bulk wines are capable of yielding fine wines under favorable conditions, when blended with a sufficient quantity of finer varieties.

According to the quantity of sugar retained by the arrest of fermentation, wines are divided into sweet and dry; according to color, into red and white; and according to the quantity of carbonic acid gas generated in fermentation and retained under pressure, into still and effervescing wines, such as champagne. The quantity of sugar contained in grapes used for wine making is influenced by many conditions, such as the variety of the grape, soil, climate, and the vicissitudes of the season, and will vary from 13 to 30 per cent. In fermentation, sugar is converted into alcohol, and for the sweet wines the grapes with the largest percentage of sugar are selected. Before enough of the sugar is fermented out to convert the juice into a dry wine, grape brandy is added to give the requisite alcoholic strength and to arrest fermentation. Red wines are made from grapes with colored skins which are fermented with the juice, and from which the alcohol formed by the fermentation of the sugar absorbs the coloring matter. White wines are usually made from distinct types of light-colored grapes, fermented without the skins.*

*Professor Frederic T. Bioletti, of the University of California.

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The production of sweet wine during 1911 constituted a record, the quantity of the different varieties up to the close of the year being as follows:

Varieties (made August-Deecmber, 1911).	1911
Angelica	2,609,518
Malaga	327,172
Muscatel	2,247,219
Madeira	119,781
Port	9,522,237
Sherry	8,559,868
Sweet Catawba	
Tokay	81,645
Fractional gallons	4
Totals	23,467,444

The production of wine and brandy is given for the fiscal year ending June 30th, but as almost all the wine is made in the fall of the year, the vintage is really that of the previous year. For example, the 1912 vintage appears under the year ending June 30, 1913.

The estimated production of sweet wines and brandy made last season from August, 1913, to January 31, 1914, is almost the same as the previous year.

Varieties (August-December, 1913).	Gallons
Angelica	1,195,641
Muscatel	1,512,727
Malaga	288,170
Madeira	40,914
Port	9,158,474
Sherry	4,900,360
Tokay	39,816
Total	17,136,104

The total amount of brandy produced was 6,584,908 gallons, and the quantity used for fortification 2,820,314 gallons, and the quantity of dry wines is estimated at 25,000,000 gallons.

Sparkling Wines.

The manufacture of sparkling wines is now engaging the attention of the wine makers in California and promises to be successful. The production of naturally fermented champagne in the bottle during the last three years has steadily increased, the total being estimated as follows:

Year	Bottles
1911	580,000
1912	800,000
1913	1,000,000

The bottling is done in the months of June and July of the following year. The increase in the output is largely due to the heavy bottling of the Italian Swiss Colony during the past ten years. Last year they

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filled 400,000 bottles of Golden State Champagne, which is the brand they will offer during the Exposition year, and this year it is expected that 600,000 bottles will be filled at Asti.

Grape Juice.

The manufacture of grape juice in this State does not appear to be increasing. The best authorities place the quantity at about 75,000 gallons, and the highest at not exceeding 100,000 gallons, and it is claimed that so far, there is no profit in its manufacture.

Many judges consider that some of the eastern varieties of grapes, such as the Concord, are better suited for the making of grape juice.

Prices of Wine Grapes.

The prices paid for grapes vary considerably, according to the varieties and districts. The average price for standard wine grapes, such as Zinfandel, in the bay counties were in 1911 $14 per ton, and in 1912 $15 per ton, but for special varieties, such as Petite Sirah, Serene, Mondeuse, Cabernet, etc., as high as $20 was paid.

In Fresno County, in 1911 the price paid for average sweet wine grapes (not including Muscats) was $10 per ton, and in 1912 from $5 to $6 per ton.

In other parts of the San Joaquin Valley and the Sacramento Valley $9 per ton was paid for average wine grapes in 1911, and as high as $11 for special varieties. In 1912 standard grapes were $6 per ton, and for special varieties, or under contract, as high as $10 per ton. During the year 1913 the average price was $10 per ton, and $27.50 per ton in dry wine districts in the coast counties.

California Brandy.

The following summary shows that almost all the brandy made in the United States is produced by California. In 1913 California produced 7,472,561 gallons, and all other states only 780,313 gallons.

Total Fruit Brandy Produced in the United States, 1891-1913.

For the fiscal year ended June 30th—	Production of fruit brandy, including apple, peach, and grape, gallons
1891	1,804,712
1892	3,667,465
1893	2,358,548
1894	2,948,159
1895	1,960,176
1896	3,403,852
1897	1,813,427
1898	2,906,198
1899	3,097,769
1900	3,760,487
1901	4,047,602
1902	4,220,400
1903	6,430,673
1904	5,193,262
1905	5,448,584
1906	4,444,072
1907	6,138,304
1908	6,899,823
1909	6,440,857
1910	7,656,433
1911	7,953,131
1912	9,321,823
1913	8,252,874

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Under the provisions of "An act to reduce revenue and equalize duties on imports, and for other purposes," approved October 1, 1890, provision was made for the fortification with grape brandy, free of tax, of pure sweet wine, and of wine intended for exportation. Since that year exact returns have been kept by the Internal Revenue Department of the quantity of the various kinds of wines produced and the amount of brandy used for fortification.

Brandy From Other Fruits.

Brandy is also produced from other fruits, and until 1908 was shown separately from grape brandy in the internal revenue returns; since then all brandy is included under the head of "fruit brandy." The quantity, however, is not large; in 1908, the last year the varieties are shown separately, fruit brandy, other than grape brandy, was only 94,558 gallons, while grape amounted to 5,367,489 gallons.

Variety and Quantity of Fruit Brandy.

Varieties	Gallons
Prune	60,594
Peach	21,210
Pear	9,339
Apricot	2,178
Apple	897
Orange	280
Fig	30
Berry	30
Total	94,558

The production of brandy during the last twenty years has also greatly increased; in 1891 the quantity amounted to 1,474,876 gallons, and in 1913 to 7,472,561 gallons; considerably more than one half of this is used for fortifying the sweet wines, the amount used for this purpose in 1913 amounting to 4,671,415 gallons.

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SUMMARY OF CALIFORNIA VINTAGES, 1866-1913.*

(For the fiscal year ending June 30th.)

Year	Sweet wine, gallons	Dry wine, gallons	Total wine, gallons	Brandy used for fortifications
1851-65				
1866			2,250,000	
1867			2,500,000	
1868			4,000,000	
1869			3,000,000	
1870			3,800,000	
1871			4,500,000	
1872			3,000,000	
1873			2,500,000	
1874			4,000,000	
1875			4,000,000	
1876			4,000,000	
1877			4,000,000	
1878			5,000,000	
1879			7,000,000	
1880			10,200,000	
1881			8,000,000	
1882			9,000,000	
1883			8,500,000	
1884			10,000,000	
1885			11,000,000	
1886			18,000,000	
1887			15,000,000	
1888			17,000,000	
1889			15,500,000	
1890			14,626,000	
1891	1,083,274	18,900,000	19,983,274	193,557
1892	2,746,655	12,200,000	14,946,655	695,844
1893	2,652,480	22,000,000	24,652,480	617,593
1894	4,724,595	9,200,000	13,924,595	1,112,794
1895	4,242,600	13,700,000	17,942,600	1,018,483
1896	6,084,009	10,900,000	16,984,009	1,484,887
1897	4,968,339	11,400,000	16,368,339	1,174,466
1898	7,024,372	24,400,000	31,424,372	1,688,949
1899	7,779,031	11,200,000	18,979,031	1,860,721
1900	8,433,383	15,000,000	23,433,383	2,063,033
1901	9,177,560	13,000,000	22,177,560	2,220,659
1902	9,301,353	33,600,000	42,901,353	2,292,721
1903	16,059,747	18,500,000	34,559,747	4,011,865
1904	13,571,845	16,000,000	29,571,845	3,329,804
1905	13,161,198	18,000,000	31,161,198	3,260,421
1906	11,502,309	29,000,000	40,502,309	2,998,998
1907	15,657,572	26,800,000	42,457,572	3,962,352
1908	16,491,169	27,700,000	44,191,169	4,233,977
1909	14,368,025	33,900,000	48,268,025	3,678,376
1910	18,086,868	27,400,000	45,486,868	4,702,863
1911	18,850,167	26,000,000	44,850,167	4,951,640
1912	17,927,812	25,000,000	42,927,812	6,153,131
1913	23,467,444	22,000,000	45,467,444	4,671,415

*The above figures for sweet wine and brandy are exact; the amount of dry wine can only be estimated, as no complete records are kept. Wines being made in the fall, the vintages belong to the previous year. thus the vintage for the year ending June 30, 1913, was mostly made from August to December, 1912.

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Total Production of Sweet Wines by Vintages—1908-1913.*

(Gallons.)

Varieties	1908	1909	1910
Angelica	1,513,534	919,540	1,361,290
Lenoir	452		
Malaga	216,390	73,518	81,175
Moselle	3,488		
Muscatel	2,449,211	2,242,412	1,767,387
Madeira	13,316	51,716	2,785
Port	6,015,052	5,859,630	9,051,017
Sherry	6,267,323	5,189,598	5,690,080
Tokay	12,400	31,607	133,132
Fractional gallons	3	4	2
Totals	16,491,169	14,368,025	18,086,868

Varieties	1911	1912	1913
Angelica	1,241,431	2,609,518	1,640,738
Malaga	223,739	327,172	184,308
Muscatel	1,087,411	2,247,219	2,070,827
Madeira	363,455	119,781	48,714
Port	9,780,864	9,522,237	8,334,998
Sherry	5,955,886	8,559,868	5,619,502
Sweet Catawba	9,497		
Tokay	187,882	81,645	28,725
Fractional gallons	2	4	5
Totals	18,850,167	23,467,444	17,927,812

*For vintages, from 1891-1907, see Report for 1912, pages 181-182.

SUMMARY OF WINES PRODUCED, BY VARIETIES, 1891-1913.

(Gallons.)

Year	Angelica	Frontignan	Lenoir	Madeira	Malaga
1891	182,208				3,248
1892	379,964				62,000
1893	339,590				
1894	386,860				42,929
1895	364,297	6,133	949		2,795
1896	466,156	6,327	6,081		2,906
1897	330,032	9,020		2,269	
1898	748,686				11,614
1899	438,419	3,048			14,267
1900	870,195				975
1901	548,095			901	
1902	465,104				
1903	887,238				
1904	1,029,404				81,136
1905	1,187,683				18,847
1906	566,604				8,098
1907	1,009,600				11,899
1908	1,513,534		452	13,316	216,390
1909	919,540			51,716	73,518
1910	1,361,290			2,785	81,175
1911	1,241,431			363,455	223,739
1912	2,609,518			119,781	327,172
1913	1,640,738			48,714	184,308

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SUMMARY OF SWEET WINE PRODUCED, BY VARIETIES, 1891-1913.

(Gallons.)

Year	Muscatel	Port	Sherry	Sweet Catawba	Tokay
1891	106,922	663,668	124,837	----------	2,391
1892	145,735	1,723,744	423,383	555	5,686
1893	353,299	1,535,227	424,138	226	----------
1894	400,064	2,808,832	1,084,714	----------	1,193
1895	188,437	2,309,702	1,370,284	----------	----------
1896	863,227	2,613,734	2,118,942	----------	6,634
1897	960,897	1,670,495	1,994,649	----------	974
1898	721,556	3,158,545	2,372,197	----------	11,772
1899	819,105	3,441,592	3,053,163	----------	9,433
1900	868,388	3,949,631	2,697,682	----------	46,508
1901	1,611,116	4,407,250	2,597,377	----------	12,819
1902	1,909,485	2,854,477	4,069,538	----------	2,749
1903	1,741,952	5,171,103	8,233,871	----------	25,580
1904	721,033	7,630,881	4,109,075	----------	316
1905	1,398,532	5,530,310	5,011,744	----------	14,080
1906	933,647	5,322,203	4,648,305	----------	23,448
1907	1,484,447	7,708,226	5,443,397	----------	----------
1908	2,449,211	6,015,052	6,267,323	----------	12,400
1909	2,242,412	5,859,630	5,189,598	----------	31,607
1910	1,767,387	9,051,017	5,690,080	----------	133,132
1911	1,087,411	9,780,864	5,955,886	----------	187,882
1912	2,247,219	9,522,237	8,559,868	----------	81,645
1913	2,070,827	8,334,993	5,619,502	----------	28,725

NOTE.—The wine is made in the fall of the previous year, which is the real date of the vintage, but the returns are made for the fiscal year ending June 30th.

In 1892 5,588 gallons of Sauterne were reported, and in 1908 3,488 gallons of Moselle, but this is probably an error, as neither can be classed as sweet wines.

CALIFORNIA BRANDY.

(For fiscal year ending June 30th.)

Year	Produced	Number of fruit distilleries		
		Used for fortification of sweet wines	Registered	Operated
1885	312,197	----------	----------	----------
1886	329,679	----------	----------	----------
1887	673,610	----------	----------	----------
1888	864,704	----------	----------	----------
1889	913,481	----------	----------	----------
1890	1,072,306	----------	----------	----------
1891	1,474,876	193,557	288	284
1892	2,197,613	695,844	298	295
1893	1,642,284	617,593	292	286
1894	2,256,607	1,112,794	272	267
1895	1,677,082	1,018,483	270	268
1896	2,066,404	1,484,887	235	229
1897	1,439,285	1,174,466	239	237
1898	2,382,241	1,688,949	267	267
1899	2,775,164	1,860,721	238	232
1900	3,060,078	2,063,033	208	194
1901	3,194,544	2,220,659	222	212
1902	3,464,391	2,292,721	213	209
1903	5,614,215	4,011,865	230	223
1904	4,451,928	3,329,804	225	216
1905	4,602,133	3,260,421	224	218
1906	3,864,080	2,998,998	224	201
1907	5,367,489	3,962,352	209	193
1908	*6,388,076	4,233,977	216	202
1909	*5,971,171	3,678,376	206	201
1910	*7,170,212	4,702,863	203	195
1911	*7,316,488	4,951,640	211	202
1912	*8,721,693	6,153,131	192	181
1913	*7,472,561	4,671,415	184	179

*Including fruit brandy other than grape.

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IMPORTS AND EXPORTS OF WINE AND BRANDY.

Wines Imported.

Year	[1]Champagne and other sparkling		[2]Still wines in casks		[3]Still wines in bottles		Total value of wines
	Doz. qts.	Value	Gallons	Value	Doz. qts.	Value	
1851	117,229	$655,108	5,852,510	$1,470,811	143,487	$233,360	$2,359,279
1852	111,579	620,176	6,039,863	1,333,213	138,934	249,841	2,203,230
1853	145,211	880,712	6,742,678	1,778,390	191,464	416,529	3,075,631
1854	184,900	1,004,028	6,436,812	1,873,738	270,651	493,036	3,370,802
1855	157,717	909,922	4,669,729	1,641,078	310,967	566,330	3,117,330
1856	179,064	970,706	3,622,282	1,559,081	297,831	634,653	3,164,440
1857	210,474	1,148,469	5,336,391	2,448,913	331,436	676,823	4,274,205
1858	156,593	860,942	3,940,542	1,862,548	255,024	522,898	3,246,388
1859	246,186	1,385,760	5,022,765	1,687,404	260,698	534,984	3,608,148
1860	----------	----------	7,620,010	2,650,644	1,882,428	2,125,149	4,775,793
1861	----------	----------	4,416,583	1,790,805	1,190,829	1,347,370	3,138,175
1862	----------	----------	1,904,637	697,235	522,339	559,469	1,256,704
1863	----------	----------	3,862,706	1,172,055	736,429	967,884	2,139,939
1864[1]	----------	----------	----------	----------	----------	----------	3,391,576
1865	107,786	768,513	2,477,249	986,675	----------	----------	1,755,188
1866	192,784	1,551,206	11,405,573	3,908,940	----------	----------	5,460,146
1867	155,033	1,269,327	7,919,912	3,150,281	----------	----------	4,419,608
1868	162,822	1,358,236	5,292,761	2,207,669	----------	----------	3,565,905
1869	----------	----------	6,698,682	2,478,126	323,228	2,289,393	4,767,519
1870	----------	----------	9,087,159	3,214,996	520,622	2,586,361	5,801,357
1871	----------	----------	9,553,156	3,228,177	484,570	2,545,146	5,773,323
1872	----------	----------	9,484,157	3,290,439	430,691	2,754,035	6,044,474
1873	----------	----------	9,836,442	3,584,766	455,260	2,866,982	6,451,748
1874	----------	----------	7,839,837	3,156,979	419,422	2,887,109	6,044,088
1875	----------	----------	6,731,593	2,842,622	401,849	2,708,652	5,551,274
1876	----------	----------	4,436,016	2,084,385	364,946	2,669,725	4,754,110
1877	----------	----------	4,192,630	1,889,871	309,995	2,236,889	4,126,760
1878	----------	----------	3,686,157	1,838,891	295,172	2,123,254	3,962,145
1879	----------	----------	4,080,938	2,054,700	298,715	2,284,833	4,339,533
1880	----------	----------	4,087,332	2,356,705	407,328	3,289,766	5,646,471
1881	----------	----------	4,370,947	2,743,669	457,257	3,928,087	6,671,756
1882	----------	----------	4,878,919	3,160,672	511,444	4,398,586	7,559,258
1883	----------	----------	6,187,520	3,939,278	643,176	6,040,348	9,979,626
1884	201,414	2,362,137	2,774,771	1,979,953	251,489	1,318,743	5,660,883
1885	228,580	2,834,816	3,419,532	2,241,682	239,381	1,199,205	6,275,703
1886	238,604	3,110,292	3,787,420	2,519,624	258,153	1,310,125	6,940,041
1887	255,656	3,382,907	3,383,593	2,345,565	253,132	1,327,613	7,056,085
1888	274,914	3,646,475	3,333,322	2,287,062	284,174	1,402,661	7,336,198
1889	315,870	4,254,413	3,078,554	2,126,548	260,026	1,325,811	7,706,772
1890	354,350	4,752,572	3,485,792	2,450,174	329,604	1,657,210	8,859,956
1891	400,084	5,615,872	3,860,503	2,641,816	348,666	1,749,372	10,007,060
1892	319,592	4,571,816	3,477,989	2,464,484	365,140	1,908,203	8,944,503
1893	374,124	5,579,054	3,525,625	2,505,024	413,860	2,121,275	10,205,353
1894	237,360	3,498,522	2,599,693	1,817,813	296,097	1,423,143	6,739,478
1895	257,757	3,807,961	2,789,153	1,945,347	296,779	1,430,229	7,183,537
1896	246,393	3,628,319	2,834,898	1,950,770	314,190	1,527,916	7,107,005
1897	228,628	3,348,004	2,997,952	2,039,250	309,281	1,475,211	6,862,465
1898	223,827	3,264,323	1,930,870	1,392,710	268,921	1,312,147	5,969,180
1899	262,371	3,668,791	2,253,226	1,573,573	274,873	1,347,842	6,590,206
1900	310,149	4,114,908	2,533,828	1,744,736	315,920	1,560,851	7,421,495
1901	311,078	4,589,494	2,785,850	1,942,322	373,832	1,687,420	8,219,236
1902	335,256	4,930,768	3,300,026	2,143,433	397,818	1,846,937	8,921,138
1903	407,944	5,861,639	3,753,211	2,292,297	440,869	2,095,360	10,249,296
1904	336,245	4,969,635	4,007,691	2,387,018	471,153	2,035,217	9,391,870
1905	371,811	5,723,764	3,973,919	2,352,435	488,773	2,165,672	10,241,921
1906	415,394	6,127,062	4,482,499	2,567,712	546,688	2,299,194	10,993,968
1907	419,403	6,228,281	5,213,458	2,966,154	636,938	2,614,346	11,808,781
1908	366,669	5,221,070	5,443,782	3,008,996	628,428	2,516,461	10,746,527
1909	436,628	6,863,785	5,747,056	2,838,232	650,861	2,574,596	12,276,613
1910	391,003	6,302,377	7,100,661	3,527,896	822,243	3,177,020	13,007,293
1911	218,495	3,566,824	4,812,787	2,638,039	596,521	2,326,750	8,531,613
1912	281,134	4,688,090	3,864,071	2,488,744	577,244	2,414,621	9,591,451
1913	280,828	4,636,191	4,417,130	2,718,045	677,111	2,724,471	10,678,707

[1]1860-63 and 1869-83 included in "Still wines bottled"; 1864 included in "Total wines." [2]1864 included in "Total wines"; 1865-68 including "Still wines bottled."
[3]1860-63 and 1869-83 including "Sparkling wines"; 1864 included in "Total wines"; 1865-68 included in "Still wines unbottled."

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Brandy Imported.

(Duty, brandy and other spirits, $2.60 per proof gallon.)

Year	Proof gallons	Value
1851	3,163,783	$2,128,679
1852	2,751,947	1,792,968
1853	3,854,956	3,251,408
1854	2,152,441	2,255,397
1855	1,024,497	1,479,362
1856	1,715,717	2,859,342
1857	1,513,328	2,527,262
1858	1,180,484	2,232,452
1859	2,528,356	3,262,058
1860	2,616,555	3,938,041
1861	1,175,480	1,860,994
1862	373,227	549,345
1863	501,007	743,727
1864	693,043	915,946
1865	188,621	253,619
1866	817,743	981,010
1867	657,688	959,563
1868	379,369	590,986
1869–83 (included in "spirits and cordials")		
1884	506,681	1,263,803
1885	503,945	1,227,556
1886	432,611	1,117,237
1887	421,141	1,091,456
1888	416,899	1,119,327
1889	400,089	1,076,265
1890	461,257	1,217,913
1891	443,278	1,139,315
1892	333,284	889,883
1893	326,303	918,165
1894	201,433	568,458
1895	313,327	813,882
1896	250,704	690,761
1897	337,595	911,721
1898	137,902	395,758
1899	219,968	626,875
1900	244,100	696,540
1901	290,301	" 843,318
1902	316,222	911,419
1903	348,878	1,000,997
1904	390,988	1,104,410
1905	403,386	1,139,129
1906	470,433	1,286,270
1907	629,333	1,687,473
1908	592,382	1,523,842
1909	764,244	1,961,170
1910	716,259	1,899,021
1911	409,242	1,018,382
1912	509,286	1,316,031
1913	610,358	1,647,277

Duty on Imported Wines, Etc.

Wine containing more than 24 per cent of alcohol is classed as spirits and charged accordingly. Champagne and sparkling wines $9.60 per dozen quarts, $4.80 per dozen pints. Half pints $2.40 per dozen. Bottles containing more than one quart to pay at the rate of $3.00 per gallon on the excess. Still wines in casks, if containing 14 per cent or less of alcohol, 45 cents per gallon; above 14 per cent, 60 cents per gallon. In bottles, per case of one dozen quarts, or two dozen pint bottles, $1.85 per case. Bottles containing more than the above, 6 cents per pint on the excess. Duty on brandy and other spirits, $2.60 per proof gallon.

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Domestic Wines and Brandy.

(Exported.)

Year	Casks		Bottled		Total value of wines	Brandy proof gallons	Value
	Gallons	Value	Dozen bottles	Value			
1864	97,104	$84,022			$84,022		
1865	51,572	69,247			69,247		
1866	20,338	27,990			27,990		
1867	31,288	43,078			43,078		
1868	27,070	33,564			33,564		
1869	*	24,181			24,181		
1870	32,812	42,120			42,120		
1871	19,217	26,444			26,444		
1872	31,263	37,713			37,713		
1873	46,715	48,202			48,202		
1874	48,141	45,534			45,534		
1875	45,089	50,308			50,308		
1876	31,915	33,483			33,483		
1877	57,408	40,632			40,632		
1878	46,614	38,775			38,775		
1879	46,224	49,775			49,775		
1880	154,887	123,317			123,317		
1881	68,181	69,915			69,915		
1882	65,140	67,909			67,909		
1883	80,973	77,280			77,280		
1884	83,951	65,309	5,463	$28,923	94,232		
1885	79,733	62,574	6,487	32,725	95,299		
1886	119,085	93,297	6,051	24,813	118,110		
1887	282,607	191,672	4,426	23,499	215,171		
1888	302,233	201,525	7,185	31,698	233,233		
1889	372,350	236,488	7,311	33,000	269,488		
1890	393,323	238,580	7,281	32,350	270,930		
1891	543,292	319,085	11,409	52,392	371,477	136,529	$111,657
1892	655,795	371,344	14,834	67,686	439,030	216,696	178,294
1893	708,558	369,893	11,128	51,654	421,547	123,518	90,731
1894	802,192	380,588	13,813	63,860	444,448	361,653	291,022
1895	1,125,297	545,708	13,919	56,202	601,910	100,719	94,924
1896	1,339,090	581,827	17,147	69,460	651,287	89,259	87,294
1897	1,389,375	629,270	16,794	69,444	698,714	11,815	12,640
1898	1,623,103	682,028	9,672	46,721	728,749	24,886	39,455
			Doz. qts.				
1899	1,498,078	624,315	10,973	52,015	676,330	20,944	29,289
1900	1,408,859	575,665	9,854	49,927	625,592	80,259	83,698
1901	1,117,858	461,560	9,901	43,013	504,573	15,323	28,176
1902	929,900	407,345	10,952	42,980	450,325	24,077	30,174
1903	678,150	290,552	5,232	24,624	315,176	18,117	19,213
1904	896,643	403,557	6,066	33,136	436,693	70,193	44,119
1905	839,386	355,215	5,800	28,242	383,457	21,171	18,217
1906	789,526	326,335	5,596	25,215	351,550	5,145	8,553
1907	560,147	251,353	4,404	20,128	271,481	14,172	22,496
1908	438,676	195,160	6,273	30,830	225,990	2,750	4,900
1909	415,891	181,516	3,839	19,902	201,418	14,718	12,262
1910	501,348	193,597	5,962	31,314	224,911		
1911†	1,394,994				518,536		
1912†	957,120				366,260		
1913	1,075,151				418,668		

*Prior to 1864, stated as "Wines"; in 1869, the quantity is not stated. Brandy was included under "Alcohol" prior to 1891, and included in "All other spirits" after 1910.

†Not stated in detail after 1910. The quantity includes wines both in casks and bottles.

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PART VI.

IRRIGATION.

Description of Irrigation Enterprises; Source of Water Supply; Cost of Irrigation; Irrigated Crops, and Orchards; Dry Farming; Irrigation Districts; Colorado River and Salton Sea; Tulare and Other Lakes; Summary of Agricultural and Irrigated Areas; Irrigation from Underground Waters; California Rivers and Creeks; Acreage of Irrigated Farms by Counties.

Farms and Irrigation.

In most sections of California there is usually sufficient rainfall for the maturing of some crops, although there are other sections where no crops can be grown without irrigation. The normal annual precipitation ranges from about 2 inches in the Imperial Valley, in the southeastern part of the State, to about 60 inches along the coast in the northwestern part.

Irrigation is practiced to some extent throughout the State, but the largest part of the irrigated land lies in the southern part of the Sacramento and the San Joaquin valleys and in the northern part of the State.

In 24 of the 58 counties in the State more than half the farms are irrigated. Imperial County has the largest percentage of farms irrigated, 94.6, and Inyo County the next largest, 93.2 per cent. In both 1900 and 1910 the county for which the largest area of irrigated land was reported was Fresno, with an irrigated acreage of 402,318, compared with 283,737 in 1900. In Tulare County 265,404 acres were irrigated in 1910, and in five other counties the area irrigated exceeded 100,000 acres. The summary on page 170 shows that in 1910 existing enterprises were ready to supply water to 3,619,378 acres, or 955,274 acres more than were irrigated in 1909. The acreage included in projects exceeds the acreage irrigated in 1909 by 2,826,256 acres, which is more than twice the acreage brought under irrigation in the last decade. This acreage represents the area which will be available for the extension of irrigation in the next few years, upon the completion of projects now under way and without new undertakings.

Description of Enterprises.

Name	Acreage irrigated	Per cent distribution
United States Reclamation Service	400	*
United States Indian Service	3,490	0.1
Irrigation districts	173,793	6.5
Cooperative enterprises	779,020	29.2
Commercial enterprises	746,265	28.0
Individual and partnership enterprises	961,136	36.1
Totals	2,664,104	100.0

*Less than one tenth of one per cent.

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Irrigation districts, cooperative enterprises and individual and partnership enterprises, which together supply about 72 per cent of the acreage irrigated, are all controlled by the water users. Commercial enterprises, the only other class in the State that irrigates any extensive acreage, supplies 28 per cent.

The United States Reclamation Service operates under the Federal law of June 17, 1902, providing for the construction of irrigation works with the receipts from the sale of public lands.

The United States Indian Service operates under various acts of Congress, providing for the construction by that service of works for the irrigation of land in the Indian reservations.

The Carey act, or Federal law of August 18, 1894, granted to each of the states in the arid region 1,000,000 acres of land on condition that the state provide for its irrigation.

Irrigation districts are public corporations that operate under state laws providing for their organization and management, and empowering them to issue bonds and levy and collect taxes, with the object of obtaining funds for the purchase or construction, and for the operation and maintenance of irrigation works.

Cooperative enterprises. These are controlled by the water users under some organized form of cooperation. The most common form is a stock company, the stock of which is owned by the water users.

Commercial enterprises supply water to parties who own no interest in the works. Persons obtaining water from such enterprises are usually required to pay for the right to receive water and to pay, in addition, annual charges based in some instances on the acreage irrigated and in others on the quantity of water received.

Individual and partnership enterprises belong to individual farmers or to neighboring farmers, who control them without formal organization. It is not always possible to distinguish between partnership and cooperative enterprises, as the difference is slight.

Source of Water Supply.

As in other states, streams are the principal source of supply of water for irrigating, but in California wells supply much more land than in any other state. Much land receives water from both sources, but most of this is credited to streams.

Source	Acreage irrigated	Per cent distribution
Streams	2,246,722	84.3
Lakes	18,470	0.7
Wells	350,723	13.2
Springs	31,779	1.2
Reservoirs	16,410	0.6
Totals	2,664,104	100.0

The preceding figures show the extent to which underground water is utilized for irrigation in California. The flowing wells, of which there were 2,361, with a total capacity of 477,343 gallons per minute, irrigated 74,128 acres. The great majority of these wells are in southern California and the San Joaquin Valley, and the land thus irrigated is

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situated in Kern, Kings, Los Angeles, Orange, Riverside, San Bernardino, Santa Clara, and Tulare counties. Of the 10,724 pumped wells, 5,248 were in the counties named and 4,503 in Fresno, Merced, Monterey, Sacramento, San Benito, San Diego, San Joaquin, and Ventura counties. The pumped wells in these two groups of counties irrigated 258,687 of the 276,595 acres irrigated by such wells in the entire State. Pumping from lakes and streams has also been practiced extensively in many sections of the State, 32,539 acres having been irrigated in this way in 1909.

The Cost of Irrigation.

The following summary shows the total cost of irrigation enterprises up to July 1, 1910, including construction of works and acquisition of rights, but not operation and maintenance, with the average cost per acre, based on the acreage the enterprises were capable of irrigating in 1910.

	1900	1910	Increase, per cent
Cost of irrigation enterprises	*$19,181,610	$72,580,030	278.3
Average per acre	†13.27	20.05	
Estimated final cost of existing enterprises		84,392,344	
Average per acre included in projects		15.37	

*Exclusive of those on Indian reservations.
†Exclusive of 242 acres in Indian reservations.

The cost of irrigation systems shows the largest increase of any item, amounting to 278.3 per cent. In the average cost per acre there was also a considerable increase, compared with 1900. The large increased cost of irrigation enterprises is due in a considerable measure to the expensive equipment installed to secure a water supply and protect it from loss by seepage and evaporation, in sections where water is scarce and crop values are high. A number of large enterprises are under construction upon which considerable expenditures have been made, but which are irrigating little land as yet, making the average cost higher than the true average. The average, based on the estimated final cost and the acreage included in projects, $15.37 per acre, probably more truly represents the average cost per acre of irrigation in California.

In the county showing the lowest average cost, Mono, where much of the irrigated land consists of flooded pastures, enterprises were capable of irrigating in 1910 at $1.29 per acre. The highest average cost per acre, $368.40, is in Nevada County, where the unusual cost is due to the fact that many of the ditches now used for irrigation were originally constructed at heavy expense for mining purposes.

Irrigated Crops.

(From the Reports of the Bureau of the Census.)

The information relating to irrigated crops is to some extent incomplete; it shows, however, the relative importance of the different irrigated crops, and is sufficiently complete to afford reliable averages of yields and for comparison with totals for the State.

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Acreage Yield.

Crop	Total for State	Irrigated		Total for State	On irrigated land
		Amount	Per cent of total		
Cereals—				Bushels	Bushels
Corn	51,935	17,802	34.3	1,273,901	491,978
Oats	192,158	5,903	3.1	4,143,688	205,727
Wheat	478,217	22,603	4.7	6,203,206	408,706
Barley	1,195,158	77,785	6.5	26,441,954	1,844,971
Rye	7,027	107	1.5	70,683	1,265
Other grains and seeds—					
Alfalfa seed	8,761	2,570	29.3	23,791	5,911
Dry edible beans	157,987	11,384	7.2	3,328,218	244,624
Dry peas	2,959	290	9.8	57,468	9,902
Hay and forage—				Tons	Tons
Timothy alone	13,725	8,026	58.5	20,001	11,236
Timothy and clover mixed	46,661	20,880	44.7	73,183	34,177
Clover alone	8,519	1,176	13.8	20,380	2,689
Alfalfa	484,134	366,692	75.7	1,639,707	1,280,105
Other tame or cultivated grasses	92,556	6,504	7.0	122,103	10,656
Wild, salt or prairie grasses	253,127	153,672	60.7	281,033	189,964
Grains cut green	1,604,745	101,187	6.3	2,019,526	146,013
Coarse forage	25,868	7,593	29.4	60,611	19,151
Sundry crops—				Bushels	Bushels
Potatoes	67,688	32,735	48.4	9,824,005	5,180,006
				Tons	Tons
Sugar beets	78,671	14,657	18.6	843,269	171,494
Orchard fruits	*	73,491	*	----------	----------
Small fruits	9,687	6,876	71.0	----------	----------
Tropical fruits	*	98,969	*	----------	----------
Nuts	*	22,429	*	----------	----------
Grapes	*	74,984	*	----------	----------

*Agricultural returns only give number of trees, not acreage.

Acreage of Irrigated Crops.

Of the entire acreage of the crops in the preceding table, slightly less than one fifth is irrigated, the proportion irrigated varying widely for the different crops.

The cereals are very generally grown without irrigation, only 6.5 per cent of the total acreage of the cereal crops above given being irrigated. The hay and forage crops are more generally irrigated than the cereals, the irrigated acreage forming 26.3 per cent of the total for these crops, alfalfa being the highest, 75.7 per cent. Of the entire acreage for potatoes 48.4 per cent was irrigated, and that in small fruits 71 per cent.

Sugar beets are grown for the most part without irrigation in California, only 18.6 per cent of the total acreage of the crop being irrigated. While many of the crops irrigated are well distributed geographically, there is a tendency toward the concentration of certain crops in particular localities.

Irrigation Acreage in Orchards.

The following summary gives the counties having the largest acreage of the principal irrigated crops, with the proportions which each contains of the total irrigated acreage of these crops in the State:

Of the orchard fruits irrigated: Fresno County has 31.9 per cent; Placer, 14.8 per cent; Tulare, 8.4 per cent; Santa Clara, 6.5 per cent.

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Of small fruits: Los Angeles County, 30.4 per cent; Santa Clara, 13.9 per cent; Sacramento, 10.9 per cent; Santa Cruz, 7.2 per cent.

Tropical fruits: San Bernardino County, 25.6 per cent; Los Angeles, 24.8 per cent; Riverside, 14.2 per cent; Tulare, 11.6 per cent.

Nuts: Orange County, 46 per cent; Los Angeles, 34.7 per cent; Ventura, 12.1 per cent.

Grapes: Fresno County, 62.6 per cent; Tulare, 12.2 per cent; Kings, 6.2 per cent; Sacramento, 5.7 per cent.

Of the total irrigated acreage of fruit trees and vines not bearing in 1909 (amounting to 59,031), 36.1 per cent was in Fresno County, 14 per cent in Tulare County, 8 per cent in Orange County, and 7.2 per cent in Los Angeles County.

SUMMARY OF IRRIGATED FARMS AND IRRIGATION ENTERPRISES IN 1900 AND 1910.

	1900	1910	Increase	Per cent
Number of farms in State	72,542	88,197	15,655	21.6
Number of farms irrigated	25,675	39,352	13,677	53.3
Acreage irrigated	1,446,114	2,664,104	1,217,990	84.2
Acreage enterprises were capable of irrigating in 1910	*	3,619,378		
Acreage included in projects	*	5,490,360		
Percentage of number of farms irrigated	35.4	44.6	9.2	
Percentage of improved lands in farms irrigated	12.1	23.4	11.3	
Irrigation enterprises—				
Number of independent enterprises	*	13,970		
Total length of ditches (miles)	*	21,129		
Number of main ditches	*	8,590		
Length of main ditches (miles)	*	12,620		
Capacity of cubic feet per second	*	89,597		
Number of lateral ditches	*	6,143		
Length of lateral ditches (miles)	*	8,509		
Number of reservoirs	*	1,583		
Capacity (acre feet)	*	743,269		
Number of flowing wells	*	2,361		
Capacity, gallons per minute	*	477,343		
Number of pumped wells	*	10,724		
Capacity, gallons per minute	*	4,119,575		
Acreage irrigated with pumped wells	*	276,595		
Acreage irrigated with flowing wells	*	74,128		
Acres irrigated with pumped water from all sources, including lakes and streams	*	309,134		
Number of pumping plants	*	9,297		
Engine capacity, horsepower	*	128,143		
Pumping capacity, gallons per minutes	*	5,276,298		
Total cost of irrigation systems	$19,181,610	$72,580,030	$53,398,420	278.3
Average cost per acre	$13 27	$20 05	$6 76	51.0

NOTE.—Reservoirs are those filled by collecting storm water, or from water courses that are usually dry. When reservoirs are filled from streams or wells the primary source is considered the source of supply. The "acre-foot" is the volume of water required to cover one acre to a depth of one foot or 43,560 cubic feet.

*Not reported in 1900.

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Irrigation in 1910 Compared with the Year 1900.

The increase in irrigation during the last decade has been very large. The total number of farms irrigated was 39,352, against 25,657 in 1900, an increase of 13,677, or 53.3 per cent. The per cent irrigated of the whole number of farms was 44.6, compared with 35.4 per cent in 1900, showing an increase of 9.2 per cent during the ten years.

The total acreage irrigated in 1910 was 2,664,104 acres, against 1,446,114 acres in 1900, an increase of 1,217,990 acres, or 84.2 per cent. The total acreage which all enterprises were capable of irrigating in 1910 was 3,619,378, an excess of 955,274 acres over the area irrigated in 1909. The area included in projects either contemplated or under construction in 1910 was 5,490,360 acres. This indicates in a general way the area which will be available within the next few years for the extension of irrigation, and shows that the area irrigated in 1910 can be more than doubled without the construction of additional works.

The number of independent enterprises in 1910 was 13,970. The total length of all ditches was 21,129 miles, of which there were 8,590 main ditches, extending 12,620 miles, and 6,143 lateral ditches, with 8,509 miles. The length of main ditches in 1900 was 5,106 miles, showing an increase in the ten years of 7,493 miles, or 146.7 per cent.

The number of reservoirs reported was 1,583, having a capacity of 743,269 acre feet.

The number of wells pumped for irrigation was 10,724, with a capacity of 4,119,575 gallons per minute. The number of pumping plants was 9,297, with on engine capacity of 128,143 horsepower and a pumping capacity of 5,276,298 gallons per minute. The flowing wells numbered 2,361, with a capacity of 477,343 gallons a minute.

The total cost of irrigation systems in 1910 was $72,580,030, against $19,181,610 in 1900, an increase of $53,398,420, or 278.3 per cent.

The average cost per acre was $20.05 in 1910, against $13.27 in 1900.

Dry Farming.

The United States Government is not only interested in settling its irrigated lands, but also in developing all parts of its territory, and for this reason the various bureaus of the Department of Agriculture have been studying the soils of the West and also scouring the world to find crops suited for these regions. Dry farming is meeting with a certain amount of success in various parts of the country, and the combined efforts of all of these endeavors to make fertile and productive these lands will result in an era of unprecedented prosperity for the entire West.

The Orland Project. This project is in the Sacramento Valley and includes about 14,000 acres in Glenn and Tehama counties, principally in the former. The canals of the Lemon Home and Stony Creek irrigation companies have been purchased and, together with storage on Stony Creek, assume a continuous supply of water. The present boundaries may be extended in the future, as surveys have been completed for the Iron Canyon reservoir, on the Sacramento River above Red Bluff, which, if completed, will furnish water to large areas in Shasta, Butte, Tehama, and Glenn counties.

Yuma or Laguna Project. This project is principally in Arizona, but will cover about 17,000 acres of the Colorado desert, in Imperial County. The Laguna dam is situated on the Colorado River, about

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twelve miles above Yuma, and diversions will be made to both sides. The land on the California side is included in the Yuma Indian reservations, and all but 4,000 acres, reserved for the Indians, is open to bona fide settlers. The dam was completed in April, 1909, and water is now being carried through the canals.

Klamath Project. This covers land in Oregon and California, and is largely a drainage proposition in California, being the reclamation of swamp land surrounding Lower Klamath Lake, and the lowering of the water level in Tule Lake, in Siskiyou and Modoc counties.

Irrigation Districts.

Modesto District. This district lies entirely in Stanislaus County, between the Tuolumne and Stanislaus rivers and contains 81,143 acres of valley land. The irrigated area is increasing rapidly, and during 1909 more than 22,000 acres were served by the canals.

Turlock District. This district lies just across the Tuolumne River from the Modesto district, and extends southwest to the Merced River. It includes nearly all the valley land between these two streams in Stanislaus and Merced counties, and comprises 176,210 acres. It was opened in 1901, and nearly 52,000 acres were irrigated in 1909.

Alta District. This district is located in Fresno, Tulare, and Kings counties, and covers 130,000 acres, extending from the east and south bank of the Kings River to the Sierra foothills. It was organized in July, 1888, and the 1876 canal system was purchased to supply the water. The company did not have an early right on Kings River, and the water cut off usually in July, but receives it again in October and November by agreement with the earlier appropriators. About 80,000 acres are under irrigation, mostly around Reedley and Dinuba.

Tulare District. This district was organized in June, 1889. It obtains water from the Kaweah and St. John rivers, in Tulare County, and includes 37,400 acres, of which 12,000 were irrigated in 1909. Water rights are similar to those in the Alta district, and pumping is resorted to during the summer to augment the supply.

South San Joaquin and Oakdale Districts. These districts were organized in 1909. The South San Joaquin district includes about 71,000 acres on the north side of the Stanislaus River, and the Oakdale district includes 65,000 acres, lying on both sides of the river.

Private Irrigation Systems.

The following are a few of the most important of the very large number of private systems in various parts of the State:

California Development Company. This company diverts water from the west bank of the Colorado River close to the Mexican border. Its main canal passes through a portion of the Mexican territory of Lower California, where about 100,000 acres are served. It enters the State again at about sea level, and covers about 400,000 acres, mostly below sea level, in the Imperial Valley, of which upward of 225,000 acres are irrigated. The company does not own any of the land, most of which has been taken up under the Desert Land Act. The company has organized the farmers on the main laterals into mutual companies, each of which controls its own separate system and elects and appoints its officials.

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San Diego Flume Company. This system, which is typical of the coast region of southern California, irrigates about 7,000 acres to the north and east of the city of San Diego from the San Diego River and the storage reservoirs. The main reservoir, known as the Cuyamaca, is on the headwaters of Boulder Creek, at an elevation of 4,600 feet, and has a capacity of about 12,250 acre feet. The water is diverted from San Diego River at the mouth of Boulder Creek, twelve miles below the reservoir, and carried to the irrigated orchards by means of a 4 by 6 foot wooden flume thirty-five miles long. There are five tunnels and numerous high trestles along the route. The San Diego River is dry for four or five months in the year, at which time the stored water is used.

Riverside Water Company and Gage Canal Company. These two systems serve the valuable lands between the south bank of the Santa Ana River and the hills from the section east of Colton, through the Riverside district, in San Bernardino and Riverside counties, but are in no way connected with each other. The former company covers the lower lands, while the latter furnishes water to those nearer the foothills, including Arlington Heights. The Riverside Water Company was organized by the irrigators under it with 24,000 shares of stock, two shares being held for each acre, 12,000 acres being the limit of service. In 1908 9,050 acres were irrigated, nearly two thirds of which were in orange orchards, and the greater part of the balance in alfalfa. The main canal is lined with concrete cement, and the distributary system is largely pipe lines, conveying water to the highest point on each ten acres. The value of the entire system, which includes the municipal supply of Riverside, is estimated at $2,500,000, the irrigating portion alone being valued at nearly $1,000,000.

The Gage Canal Company diverts water from the Santa Ana River; its flow is largely augmented during the summer by numerous artesian wells and pumping plants. About 9,500 acres were irrigated in 1907, mostly orange orchards, but the system will cover 2,000 acres more. This is probably the most highly-developed system in the United States, no expense being spared to prevent seepage loss or to give satisfactory service.

Kern County Land Company. The Kern County Land Company is interested in numerous canal projects and corporations, taking water from both sides of Kern River, irrigating lands in what is called the Kern delta, lying south, west, and southwest of Bakersfield. Of these lands there are about 80,000 acres in alfalfa, 12,000 acres in grain, 10,000 acres in pasture, wild grass, and 15,124 acres in orchards, vines, gardens, etc. The right to the use of water on these lands is appurtenant thereto.

Kern Valley Irrigation Company. The Kern Valley Water Company's canal, belonging to Miller & Lux, irrigates the riparian lands lying between Buena Vista Lake and Tulare Lake. About 63,000 acres of this land are in cultivation, mostly in alfalfa. The flood waters of Kern River are stored in the Buena Vista Lake reservoir, and the water so stored belongs to the Kern Valley Water Company. The Kern Valley Water Company's canal also serves to carry off the water in time of excessive floods.

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Fresno and Consolidated Canals Company. These two systems, although kept separate, are operated by the same people and cover practically all the irrigated lands in Fresno County, amounting to about 360,000 acres. The points of diversion for the various canals are all along the west bank of the Kings River, close to where it enters the valley. The Fresno canal system is one of the oldest of the large irrigation concerns in the valley, having been organized in 1871, when it took over some of the small canals constructed a year or two earlier, and this was the beginning of the great agricultural development of this county. The Gould and Enterprise canals are also included in this system.

The Consolidated includes the Fowler Switch and the Centerville and Kingsburg canals, as well as a majority of the stock of the Emigrant canal. The latter is on the lower Kings River, and diverts water from the river six miles west of Kingsburg to irrigate lands on the Laguna de Tache Rancho, which belongs largely to this company.

The water rights do not represent any rights in the affairs of either company, being merely a right to use the water, and when located on the lands they are appurtenant thereto and can not be removed. The Fresno system has an early priority on the Kings River, amounting to 1,000 cubic feet per second, which gives 1,000 first-class rights, but as a considerable area of the earlier irrigated section does not require water on account of the high water-table, second-class rights have been sold. By agreement, these rights are entitled to the water not used under the first-class rights, and do not receive any if the first-class rights demand the entire flow of the canal. Little trouble has been experienced thus far by the holders of these second-class rights. Water can be obtained usually under this system up to September 1st, and in some years to October 1st.

The Consolidated has later priorities on the river, and its flow is cut off from the middle of June to August 1st, so that its rights are not so valuable as the Fresno canal rights. An annual charge is made for the maintenance of the main canals, amounting to 62½ cents per acre under the Fresno and 75 cents per acre under the Consolidated. The lateral ditches are owned and controlled by the irrigators. No measurements are made to users, each irrigator taking what he needs in accordance with the rights held by him. Considering its area, it is the most highly developed district in the State.

The San Joaquin and Kings River Canal and Irrigation Company. This system diverts water from the west bank of the San Joaquin River about 1½ miles north of the town of Mendota, in Fresno County. It is the oldest large canal in the valley, having been organized in February, 1871. The area tributary to it extends for seventy miles along the west bank of the river, in Fresno, Merced, and Stanislaus counties. The company belongs to Miller & Lux, who have riparian rights on the river, and their own lands are very largely included. About 340,000 acres of land are irrigable from this system, although at present about one third is served, of which 40,000 acres are in private ownership and purchase water from the company. No water rights are sold; the water is measured to the users and charged for on the basis of a flow of 1 cubic foot per second for twenty-four hours. The lands under this system include a large area of swamp and overflow land along the river. This is flooded during the high water by means of large checks, and produces pasturage during the summer and fall months for large herds of cattle

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belonging to the company. The improved lands under this system are in alfalfa principally, with some orchards and vineyards in the Dos Palos Colony.

The Crocker-Huffman Land and Water Company. The Merced River furnishes the supply for the 220,000 acres irrigable from its canals. These lands extend from the foothills, near where the river enters the valley, to the country surrounding the city of Merced and between that city and Livingston. Only a small portion of the land is irrigated at present, but settlement is going on rapidly, especially near Atwater.

The Butte County and the Sutter County Canals. These two canals are controlled by the same people, using the same main canal, but are separately incorporated. The Butte canal serves the area in Butte County and the Sutter canal serves that in Sutter County. This combined system covers about 80,000 acres, 30,000 in Butte and 50,000 in Sutter County, composed of lands between the Feather River, the Marysville Buttes, and the swamp lands along the Sacramento River south to where the slough which leaves the Feather River near Marysville joins the Sutter basin. The point of diversion is on the west bank of the river, six miles northeast of Biggs. The canal follows the high land parallel and near to the Feather River, and irrigates the land on both sides. About 10,000 acres are under irrigation, the principal crop being alfalfa, although orchards and vineyards are being planted also.

Sacramento Valley Irrigation Company. This is a recent enterprise, backed by large Eastern financial interests, which have secured the rights of the Central Irrigation District by the purchase of all outstanding district bonds for 35 per cent of their par value. They have secured control, also, of 100,000 acres in the above district, and are carrying on extensive work in preparing for the irrigation and drainage of the 225,000 which will be included in their system. The central irrigation canal, which diverts water from the west bank of the Sacramento River, about two miles south of the county line between Tehama and Glenn counties, will be their main canal. This canal runs first to Willows, and from there to the town of Arbuckle, in Colusa County. All lands between this main canal and the Sacramento River are included in the project. The installation of a drainage system at the same time as the irrigating will insure the lands against damage from a high water-table, which has ruined many fertile acres of irrigated lands in the State.*

Imperial Valley and the Salton Sea.

The Colorado River is the division line between California and Arizona. It empties into the Gulf of California about sixty miles below Yuma, Arizona. The Colorado has been called the Nile of America, as it is subject to a large rise annually. Its waters have turned the desert lands of Imperial Valley into fertile lands, and more will be reclaimed by the Yuma project of the United States Reclamation Service.

The Salton Sea, or sink, originally formed a part of the Colorado desert, which comprises an area of nearly 2,000 square miles. The desert comprises two fertile valleys, one in Riverside County, known as the Coachella Valley, the other as Imperial Valley, in Imperial County.

*See "Irrigation in California," by F. W. Roeding, United States Department of Agriculture.

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Salton Sea, which partly fills the sink, lies between the two valleys. On December 31, 1908, its surface was 206 feet below mean sea level, and was nearly 45 miles long and from 9 to 15 miles wide, its maximum depth 67 feet and its area about 443 square miles.

In 1891 the Colorado overflowed into Salton Sink; in 1905 the flood repeated on a much larger scale. The old channel of the Alamo River was transformed into a deep, wide gorge, and another channel, now called New River, was formed. Practically all the water received by Salton Sea enters through Alamo and New rivers, but chiefly through the former. These rivers run through Imperial Valley and are drainage channels for waste water from irrigation systems and power plants.

Lakes.

There are several good-sized lakes in the northeastern part of the State, namely, Lower Klamath Lake, near Brownell, which has an area of about 21,000 acres; Tule, Clear, Goose, and Upper, Middle and Lower Alkali lakes. All of these are shallow and more or less alkaline. Farther south there are the Eagle and Honey lakes, the water of the latter sweet, and the former rather alkaline.

South of these is Lake Tahoe, at an elevation of 6,000 feet, with a surface area of about 250 square miles, partly in California and partly in Nevada. It has an average depth of about 1,000 feet, and is the source of the Truckee River.

Mono and Owens lakes, like many others, have no outlet, and are strongly alkaline.

Tulare Lake is a shallow body of water, about thirty miles south of Fresno and forty miles northwest of Bakersfield. In 1852–1854 the area was nearly 1,000 square miles, the lake being full, and about 35 feet deep. The flood of 1867 was the last to fill the lake to overflowing and about 1870 it began to recede, until in 1898 the lake bed became practically dry, brought about by the water being diverted for irrigation and light precipitation for a number of years. After partly refilling in 1901 it became completely dry in 1905, and in the early spring of 1906 was entirely under cultivation. On March 15, 1906, the first water reached the lake bed at the mouth of the Kings River and spread over a large area. A few days later water from Kaweah and Tule rivers reached the lake. On June 1st the water was 7 feet deep and covered about 200 square miles. On June 23d overflow water from Kern Basin cut through the sand ridge to the south and flowed into the lake. On August 4th the water reached its greatest height for the year 1906, and the lake had an area of about 300 square miles and a maximum depth of 12.7 feet. The total rise of the lake that year was 10.8 feet. In November, 1907, the lake had an area of about 274 square miles, a depth of about 12.4 feet, and an average length of 20 miles, and a width of 13.5 miles. The lake reached its greatest height in July of 1907, when it had a maximum depth in the summer of nearly 14 feet. Since then it has been subsiding, and is about 11 feet deep. It is probable that the lake will continue to fluctuate very much as in the past, but whether it is to fill and subside alternately are questions of great importance.

The sudden reappearance of the lake resulted in the loss of millions of dollars, but permanent reclamation is ultimately hoped for.*

*For further valuable details, see Water Supply Paper, Part XI, by W. B. Clapp and F. F. Henshaw, United States Geological Survey.

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Buena Vista Lake is the outlet of Kern River, and is connected with Tulare Lake by sloughs.

Clear Lake, in Lake County, is the only natural body of sweet water in the Coast Range worthy of consideration. It has a surface area of 64 square miles, and is the source of Cache Creek, which enters the Sacramento River near Woodland.

IRRIGATION RESOURCES OF CALIFORNIA.*

(Compiled from the report of the Conservation Commission of California.)

Summary of Agricultural and Irrigated Areas in Northern California.

Division	Valley agricultural land, acres	Valley plains, acres	Foothill agricultural land, acres	Areas irrigated, acres
Northern coastal counties	503,000			2,290
North central mountain valleys	435,000			99,910
Northeastern plateaus and valleys	867,000			161,850
Feather River valleys	158,000			50,600
Sierra foothills			789,000	45,250
Sacramento Valley	2,659,000	790,000		123,800
Totals	4,622,000	790,000	789,000	483,700

Summary of Agricultural and Irrigated Areas in Central California.

Division	Valley agricultural land, acres	Valley plains, acres	Foothill agricultural land, acres	Area irrigated, acres
Coastal valleys	887,000			87,000
San Joaquin Valley	6,530,000	1,046,000		1,728,975
Sierra foothills above San Joaquin Valley			730,000	10,620
Lands east of the Sierra Nevada	472,000			137,760
Totals	7,889,000	1,046,000	730,000	1,959,355

Summary of Agricultural, Irrigated, and Estimated Irrigable Lands in Southern California.

Area	Agricultural land, acres	Irrigated land, acres	Estimated area that ultimately will be irrigated, acres
Santa Barbara and Ventura counties	509,250	49,656	322,500
Los Angeles and San Gabriel River lands	441,986	167,454	381,500
Santa Ana River lands	876,671	213,407	279,000
San Diego County	363,668	19,880	87,100
Colorado Desert and River valleys	1,550,750	279,600	766,500
Mojave Desert	2,328,000	15,489	113,000
Totals	6,070,325	745,486	1,949,600

*For further valuable details, see Water Supply Paper, Part XI, by W. B. Clapp and F. F. Henshaw, United States Geological Survey.

†For detailed tables containing summary of agricultural land and irrigated areas in northern and central California, see Report for 1912, pages 200-204, and for the San Joaquin Valley, page 206, and southern California, pages 209-211.

NOTE.—For a full description of irrigated areas in the State and of land that it is possible to irrigate. see Report of the Conservation Commission of California, 1912, which contains a large number of valuable maps; also "Irrigation Resources of California and Their Utilization," by Frank Adams, irrigation manager in charge of work in California. Experiment Station Bulletin 254.

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Summary of Areas Irrigated, 1909-1911, Revised to 1912.

Division	Agricultural areas in irrigation zones, acres	Areas irrigated, acres	Total areas it is estimated may ultimately be irrigated, acres	Approximate per cent of total estimated as ultimately irrigable
Northern California	6,200,200	487,805	3,450,000	56
Central California	9,665,000	1,959,355	4,300,000	44
Southern California	6,000,000	745,486	1,949,600	33
Totals	21,865,200	3,192,646	9,699,600	44

Drainage Area in Square Miles, Annual Flow in Cubic Feet of Rivers and Creeks in Sacramento Valley, 1875-1910.

Streams and point of measurement	Number of years	Drainage area, square miles	Mean flow, cubic feet per second	Total mean annual run-off, acre-feet
Sacramento River, Red Bluff	16	9,300	14,300	10,400,000
Sacramento River, Collinsville	7	26,200	35,900	26,000,000
Stony Creek, Fruto	10	600	802	581,000
Feather River, Oroville	9	3,640	8,320	6,020,000
Yuba River, near Smartsville	7	1,220	4,440	3,220,000
Bear River, Van Trent	6	263	574	416,000
Cache Creek, Yolo	8	1,230	960	695,000
Putah Creek, Winters	5	805	712	515,000
American River, Fair Oaks	6	1,910	5,060	3,660,000
Cosumnes River, Michigan Bar	3	524	571	404,000

Available Storage on Sacramento Valley Streams.

Name of reservoir	Description	Capacity of reservoir basin as surveyed, acre-feet	Probable amount available annually from watershed, acre-feet
Guenoc	Putah Creek	188,000	80,000
Monticello	Putah Creek	130,000	130,000
Clear Lake	Cache Creek	100,000	100,000
Little Indian Valley	Cache Creek	76,500	50,000
Briscoe	Stony Creek	14,385	14,385
East Park	Stony Creek	26,000	26,000
Mill Site	Stony Creek	43,735	43,735
Iron Canyon	Sacramento River	226,900	226,900
Jess Valley	South Fork Pit River	224,560	----------
West Valley	South Fork Pit River	94,579	----------
Warm Spring Valley	Pit River	559,015	----------
Round Valley	Ash Creek	184,732	----------
Big Valley	Pit River	3,196,188	*1,000,400
Big Meadows	North Fork Feather River	780,384	780,384
Indian Valley	Indian Creek	688,000	500,000
Concow	North Fork Feather River	10,012	10,012
Butte	North Fork Feather River	107,000	107,000
American Valley	North Fork Feather River	86,055	86,055
Spanish Ranch Valley	North Fork Feather River	8,469	8,469
Buck Valley	North Fork Feather River	37,843	37,843
Grizzly Valley	Middle Fork Feather River	61,820	20,000
Mohawk Valley	Middle Fork Feather River	12,626	12,626
Oregon House Valley	North Fork Yuba River	90,823	90,823
Greenwood	American River	65,952	65,952
Totals		7,013,578	3,390,184

*This estimate includes discharge from Goose Lake drainage.

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Drainage Area in Square Miles, Mean and Annual Flow in San Joaquin Valley.*

Rivers, creeks, and measurement at edge of foothills*	Number of years	Drainage area, square miles	Mean flow, cubic feet	Total mean annual run-off, acre-feet
San Joaquin River, and North:				
Mokelumne River	12	657	1,380	1,000,000
Calaveras River	6	491	520	377,000
Stanislaus River	18	1,051	1,930	1,400,000
Tuolumne River	21	1,635	2,870	2,080,000
Merced River	15	1,090	1,700	1,228,000
Bear Creek	6	166	65	47,000
Mariposa Creek	6	122	46	33,000
Chowchilla River	6	268	152	110,000
Fresno River	6	272	167	121,000
Upper San Joaquin River	16	1,640	2,850	2,060,000
Totals	11	7,392	11,680	8,456,000
South of San Joaquin River:				
Kings River	23	1,740	2,647	1,920,000
Kaweah River	13	520	736	533,000
Tule River	9	266	204	148,000
Kern River	22	2,345	1,063	770,000
Caliente Creek	6	423	191	138,000
Poso Creek	6	289	128	92,000
White Creek	6	90	40	29,000
Deer Creek	6	110	49	35,000
Totals	11	5,788	5,058	3,665,000
Grand totals	11	13,175	16,738	12,121,000

*From records of California Engineering Department.

Irrigation From Underground Waters in the Central Coast Valleys and the San Joaquin Valley.

CENTRAL COAST VALLEYS IN 1909.

Counties	Areas irrigated from pumped wells, acres*	Areas irrigated from flowing wells, acres*
Alameda	1,125	----------
Contra Costa	68	----------
Monterey	4,428	----------
San Benito	1,812	847
San Francisco	383	----------
San Luis Obispo	109	18
San Mateo	1,057	----------
Santa Clara	15,947	7,415
Santa Cruz	247	2
Totals	25,176	8,282

SAN JOAQUIN VALLEY IN 1909 AND 1912.

Counties	Area irrigated by pumping plants, 1909, acres*	Area irrigated from flowing wells, 1909, acres*	Total irrigated from ground waters, 1909, acres*	Area reported irrigated in 1912, acres†
Fresno	21,729	----------	21,729	27,620
Kern	4,290	2,097	6,387	12,240
Kings	1,042	11,400	12,442	30,780
Madera	1,663	----------	1,663	9,300
Merced	2,002	262	2,264	4,680
San Joaquin	8,642	----------	8,642	11,380
Stanislaus	5	----------	5	440
Tulare	31,286	6,556	37,942	75,320
Totals	70,659	20,415	91,074	171,760

*From the census reports in 1909. †California Conservation Commission.

NOTE.—The increase for the three years, 1909-1912, in the San Joaquin Valley, has averaged 30 per cent per year.

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CALIFORNIA RIVERS AND CREEKS IN 1911.*

(Compiled from the Reports of the U. S. Geological Survey.)

Rivers or creeks, and canals	Drainage area, square miles	Drainage in second-feet		Total run-off	
		Maximum	Minimum	Depth in inches on drainage area	Total in acre-feet
Southern Pacific Ocean Drainage Basins.					
Tia Juana River Basin—					
Cottonwood Creek (and conduit), near Jamul	270	97	.0	----------	4,860
Sweetwater River, near Descanso	40	182	.0	2.57	5,490
San Diego River Basin—					
San Diego River (and flume) at Lakeside	208	660	.0	1.31	14,400
San Dieguito River Basin—					
Santa Ysabel Creek, near Escondido	128	----------	----------	----------	3,410
San Luis Rey River, near Pala	318	----------	----------	----------	31,000
Santa Ana River Basin—					
Santa Ana River, near Mentone and Pacific Light and Power canal	182	1,900	39	9.91	96,500
San Gabriel River and canal, near Azusa	222	9,160	32	23.33	276,000
Los Angeles River Basin—					
Arroyo Seco, near Pasadena	16.4	----------	----------	----------	3,250
Santa Ynez River Basin—					
San Ynez River, near Santa Barbara	207	----------	----------	----------	51,500
Santa Ynez River, near Lompoc	725	20,400	30	13.86	537,000
Salinas River Basin—					
Arroyo Seco, near Soledad	215	13,300	11	25.51	292,000
San Francisco Bay Drainage Basins.					
San Joaquin River Basin—					
San Joaquin River, near Friant (formerly Pollasky)	1,640	38,800	297	40.81	3,570,000
Kern River (and power canal) at Isabella	1,220	5,750	245	13.02	846,000
Kern River, near Bakersfield	2,345	4,623	281	8.10	1,010,000
Tule River, near Porterville	266	2,780	14	8.58	122,000
Kaweah River, near Three Rivers	520	6,610	62	19.69	546,000
Kings River, near Sanger	1,740	20,500	270	30.58	2,840,000
Merced River, near Merced Falls	1,090	37,200	100	36.32	2,110,000
Tuolumne River, near Lagrange (and three canals)	1,500	52,600	16	----------	3,380,000
Modesto Canal, near Lagrange	----------	618	.0	----------	184,000
Turlock Canal, near Lagrange	----------	1,030	.0	----------	302,000
Lagrange Water and Power Co.'s canal, near Lagrange	----------	66	.0	----------	43,400
Stanislaus River, Stanislaus Water Co.'s canal and shell ditch at Knight's ferry	935	36,900	182	46.58	2,320,000
Mokelumne River, near Clements	642	16,700	75	44.29	1,520,000
Cosumnes River at Michigan Bar	524	22,400	24	31.24	874,000
Sacramento River Basin—					
Sacramento River at Antler	461	14,000	245	39.84	979,000
Sacramento River, near Red Bluff (including Goose Lake Basin)	10,400	130,000	5,110	17.27	9,580,000

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California Rivers and Creeks—Continued.

Rivers or creeks, and canals	Drainage area, square miles	Drainage in second-feet		Total run-off	
		Maximum	Minimum	Depth in inches on drainage area	Total in acre-feet
San Francisco Bay Drainage Basins—Continued.					
Pit River, near Ydalpom (includes Goose Lake drainage basin, 1,090 square miles)	6,350	20,600	3,080	11.91	4,040,000
McCloud River at Baird	665	12,600	1,240	46.45	1,650,000
North Fork of Cottonwood Creek at Ono	52	2,460	5	33.21	92,100
Stony Creek, near Fruto	601	15,400	15	16.20	519,000
Little Stony Creek, near Lodoga	102	4,980	2	17.41	94,800
Feather River at Oroville	3,640	75,400	1,060	25.27	6,850,000
Yuba River, near Smartsville	1,220	39,000	410	53.09	3,460,000
North Fork of Yuba River at Goodyear Bar	214	4,570	120	63.74	727,000
North Fork of North Fork of Yuba River at Downieville	71.2	2,290	42	71.10	270,000
Rock Creek at Goodyear Bar	10.8	545	.5	59.40	34,200
Goodyear Creek at Goodyear Bar	12.2	1,180	3	106.95	69,600
Bear River at Van Trent	263	22,200	23	36.43	510,000
American River at Fair Oaks	1,910	69,100	----------	53.01	5,400,000
Rubicon River, near Quintette	198	3,000	5	37.66	398,000
Little South Fork of Rubicon River at mouth, near Quintette (1909-1911)	57.8	616	2	33.72	104,000
Cache Creek at Lower Lake	500	1,410	3	9.47	252,000
Cache Creek at Yolo	1,230	18,400	.0	7.573	496,000
*Northern Pacific Ocean Drainage Basins.**					

*This includes the Russian River basin, Mattole Creek basin, Eel River basin, Yager Creek, Van Duzen River, Mad River basin, and Redwood Creek basin, but the records available are not sufficient to enable these details to be given.

In addition to these there are a large number of other rivers and streams, the details of which are not so complete as the above. See Water Supply Paper 311, U. S. Geological Survey, 1912, and Water Supply Paper 300, 1913.

NOTE.—There are four drainage areas in California: The South Pacific Coast area—Tia Juana River, Sweetwater River, San Diego River, San Dieguito River, San Luis Rey River, Santa Ana River, San Gabriel River, Malilu Creek, Santa Ynez River, Santa Maria River, Salinas River; North Pacific Coast area—Russian River, Eel River, Mad River, Klamath River (includes Trinity and Scott rivers); Big Basin area—Susan River, Willow Creek, Truckee River, Owens River; Great Valley area—Sacramento Valley, San Joaquin Valley, San Joaquin River basin, Tulare Lake basin, Kern River basin.

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TABLE XXXIV.

Irrigated Farms—Acreage and Cost, 1910.

(Compiled from the Reports of the Bureau of the Census.)

Counties	Number of farms irrigated	Acreage irrigated	Acreage capable of irrigation, 1910	Acreage capable of irrigation in projects	Cost of enterprises to July 1, 1910	Average cost per acre capable irrigation, 1910
Alameda	50	1,859	1,872	2,605	$57,156	$30 53
Alpine	32	3,349	3,399	3,435	7,498	2 20
Amador	73	826	3,973	4,139	265,608	66 85
Butte	556	28,754	115,075	233,500	1,231,894	10 71
Calaveras	154	1,275	3,161	3,919	121,033	38 29
Colusa	112	4,276	16,541	18,783	76,112	4 60
Contra Costa	78	26,856	32,562	32,640	90,503	2 78
Del Norte						
El Dorado	244	5,122	5,501	20,264	346,939	63 07
Fresno	5,310	402,318	560,326	633,652	1,898,460	3 39
Glenn	196	5,661	16,804	220,664	1,519,561	90 43
Humboldt	33	208	333	966	29,027	87 17
Imperial	1,250	190,711	242,000	375,000	4,955,272	20 48
Inyo	408	65,163	71,815	92,319	962,698	13 41
Kern	876	190,034	217,418	402,806	1,788,635	8 23
Kings	1,126	190,949	289,523	310,523	687,381	2 37
Lake	43	582	828	1,268	12,124	14 64
Lassen	355	77,079	89,815	149,530	884,965	9 85
Los Angeles	4,669	145,586	183,506	241,794	7,817,023	42 60
Madera	158	38,705	51,230	82,321	512,098	10 00
Marin	6	67	71	71	3,380	47 61
Mariposa	56	376	546	767	13,440	24 62
Mendocino	39	371	590	1,365	30,297	51 35
Merced	1,417	151,998	248,670	281,719	3,748,211	15 07
Modoc	437	82,075	89,476	124,166	301,040	3 36
Mono	76	49,027	50,007	84,973	64,282	1 29
Monterey	258	15,056	27,176	29,914	495,916	18 25
Napa	36	1,191	2,035	2,443	53,948	26 51
Nevada	300	3,839	4,259	5,267	1,569,028	368 40
Orange	2,215	55,056	63,486	71,444	1,948,246	30 69
Placer	618	16,845	23,365	61,751	2,798,740	119 78
Plumas	151	36,602	37,529	37,901	107,118	2 85
Riverside	2,174	71,436	103,233	210,452	5,648,469	54 72
Sacramento	1,053	53,683	69,970	74,588	1,452,471	20 76
San Benito	240	7,186	13,790	20,067	177,924	12 90
San Bernardino	2,463	70,278	86,107	152,415	9,416,960	109 36
San Diego	890	24,944	31,205	45,535	3,753,127	120 27
San Francisco	25	383	383	383	21,975	57 38
San Joaquin	1,452	59,811	77,083	173,563	1,689,720	21 92
San Luis Obispo	91	1,687	2,416	2,539	32,311	13 37
San Mateo	75	3,648	3,653	3,983	90,921	24 89
Santa Barbara	137	12,012	13,572	13,603	307,186	27 28
Santa Clara	1,101	37,637	50,939	60,140	1,337,216	26 25
Santa Cruz	106	1,201	1,313	2,232	76,621	58 36
Shasta	639	33,004	36,564	72,653	430,766	11 78
Sierra	94	17,504	17,505	18,249	69,650	3 98
Siskiyou	636	60,301	66,866	79,161	370,627	5 54
Solano	150	3,610	7,160	8,192	135,532	18 93
Sonoma	38	631	761	951	13,801	18 14
Stanislaus	1,911	84,015	141,785	340,914	4,051,870	28 58
Sutter	39	1,173	1,361	1,959	18,800	13 81
Tehama	366	14,281	23,167	36,020	263,055	11 35
Trinity	201	6,324	7,127	9,513	173,414	24 33
Tulare	3,048	265,404	337,938	466,735	5,634,379	16 67
Tuolumne	157	2,035	2,083	5,958	180,474	84 64
Ventura	489	25,273	49,407	56,357	2,262,205	45 79
Yolo	333	11,754	14,697	55,967	311,660	21 21
Yuba	112	3,073	6,401	46,322	198,268	30 97
Totals	39,352	2,664,104	3,619,378	5,490,360	$72,580,030	av. $20 05

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TABLE XXXV.

Irrigated Farms—Main Ditches, Laterals, Flowing Wells and Pumped Wells, 1910.

Counties	Main ditches		Laterals		Wells	
	Number	Length, miles	Number	Length, miles	Number of flowing wells	Number of pumped wells
Alameda	49	21				56
Alpine	25	34	3	1		
Amador	55	185	12	56		
Butte	135	270	145	170		46
Calaveras	148	124	32	31	6	7
Colusa	38	44	10	7		3
Contra Costa	176	172			1	26
Del Norte						
El Dorado	56	285	25	55		
Fresno	254	831	688	1,354	3	855
Glenn	50	136	554	1,073		105
Humboldt	33	26	4	2		2
Imperial	12	117	179	890		
Inyo	184	396	326	168	10	1
Kern	178	441	118	257	25	140
Kings	27	137	51	159	75	20
Lake	44	26	21	2	1	3
Lassen	295	368	263	116		
Los Angeles	601	800	494	500	376	1,673
Madera	34	79	30	294		33
Marin	5	5				1
Mariposa	49	21				2
Mendocino	33	19	8	6		6
Merced	45	261	353	352	29	78
Modoc	446	637	490	175	45	2
Mono	85	172	101	65		
Monterey	106	223	23	32		102
Napa	26	8	3	3		2
Nevada	110	236	46	32		5
Orange	309	180	115	246	588	580
Placer	35	194	46	108		2
Plumas	147	201	62	16	3	
Riverside	301	500	262	288	553	792
Sacramento	213	238	5	8		1,168
San Benito	64	61	12	33		87
San Bernardino	291	466	237	283	79	449
San Diego	288	259	244	140		438
San Francisco	24	7				39
San Joaquin	298	308	49	192		1,618
San Luis Obispo	51	42	5	3	4	12
San Mateo	57	58				40
Santa Barbara	76	75	4	5	7	113
Santa Clara	458	228	39	27	438	800
Santa Cruz	81	41			2	58
Shasta	446	678	130	81	2	34
Sierra	119	150	4	1		
Siskiyou	595	688	172	41		3
Solano	20	22				125
Sonoma	32	21				11
Stanislaus	23	153	34	274		3
Sutter	13	6				18
Tehama	136	164	41	40	1	141
Trinity	208	228	41	13		1
Tulare	752	1,033	577	629	79	794
Tuolumne	62	153	11	24	2	4
Ventura	148	177	53	87	32	157
Yolo	8	87	8	83		58
Yuba	36	128	13	87		11
Totals	8,590	12,620	6,143	8,590	2,361	10,724

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PART VII.

PETROLEUM, NATURAL GAS, MINERALS AND MINERAL SPRINGS.

Petroleum by Counties and Fields. Production 1870–1913. Production in Other States. World's Output. Imports and Exports. Natural Gas. Minerals. Mineral Springs.

PRODUCTION OF PRINCIPAL MINERALS—1900-1913.

Value of Principal Minerals, Value by Counties, Mineral Springs in California.

PETROLEUM.

The existence of petroleum in California has long been known. The native Indians used it in the form of asphaltum for various purposes, and it was utilized by the Catholic Fathers for roofing their missions and other buildings. For nearly half a century Russia was the largest producer of petroleum in the world, but now occupies the second place, the first being held by California.

Until the year 1875 practically all the oil produced in the United States came from Pennsylvania and New York; in 1876 California, West Virginia, and Ohio became producers, but California soon took the lead and has kept on increasing it ever since, and promises to retain this supremacy for future years.

Early History of California Fields.

Ventura was the pioneer county in California in the second successful search for oil. In June, 1865, the first well was started, but it was a failure. In 1876 oil of good quality was found, and by 1883 the production was well developed.

In Los Angeles the industry dates from February, 1892, when two wells were dug, and at 150 feet oil was found. The wells were near the intersection of West street and Lake Shore avenue, but the production was only two to three barrels a day. By the end of 1895 there were more than 300 wells within an area of four million square feet, and by June, 1900, 1,300 wells were drilled within the city.

In Santa Barbara County oil was first struck in the Summerland district in 1893, many of the wells being sunk beyond low-water mark. The Santa Maria district up to 1899 was entirely unknown as an oil-producing district. A favorable report having been made on lands of the Carreaga ranch, three prospect holes were drilled, and in August, 1901, paying quantities were obtained. In 1902 the Pinal Oil Company of Santa Maria began operations on the north side of Graciosa Ridge, and many other companies have since undertaken operations in this field. The developed fields lie on the low, rolling hills between the Santa Maria and Lompoc valleys, and the wells are known to obtain their oil from the Monterey shale which underlies this region. The Hartnell well, a gusher, struck in 1904, produced 10,000 barrels daily for several months, and at the time was said to be the greatest well ever drilled in the United States.

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In the Coalinga field the first well was drilled about the year 1890 to the depth of 163 feet, and a windmill pump was attached, which raised 20 barrels of oil in two days. In 1895 the Producers' and Consumers' Oil Company of Selma was organized by J. A. McClurg and others. In 1897 the Home Oil Company of Selma was formed by S. W. Terril and others, which drilled wells ranging from 900 to 1,700 feet. The production in 1897 was 70,140 barrels; in 1898, 154,000 barrels; in 1900, 582,000 barrels, and in 1903 it first passed the million mark, with 2,214,160 barrels.

In Orange County prospecting for oil commenced as early as 1867, but it was not until 1897 that the Santa Fe Railroad made a strike in the Fullerton district, and since then developments have been steady.

In Kern County the production of oil first commenced in 1898, with an output of 10,000 barrels, increased to 15,000 the following year, and is now the largest oil-producing county in the State.

The Midway district, in Kern County, is the largest producer, followed by Coalinga.

Duration of Oil Fields.

An estimate made by Mr. Ralph Arnold for the Geological Survey states that the known oil fields of the State can furnish a minimum of 5,000,000,000 barrels, and a probable maximum of 8,000,000,000 barrels of oil. In other words, a supply of cheap and most efficient fuel is available in California for a century to come.

The National Conservation Committee in 1908 estimated the petroleum area in California as 850 square miles, and the natural gas area as 310 square miles.

A vast system of pipe lines has been constructed from the various fields to the coast. There are several lines in the Coalinga fields, two of 133 miles in length to Point Richmond, on the bay of San Francisco, another of 110 miles to Monterey, another to Salinas, and one to Port Costa, 198 miles long. There is also another to Port Harford, about 100 miles in length, which makes a junction in the Devil's Den district with a line coming north from McKittrick, Midway, and Bakersfield.

The Kern River field has a pipe line to Port Costa and Point Richmond, a line from Midway connecting with them.

The Santa Maria oil field has three pipe lines, two from Orcutt and Lompoc to Harford, and another to Gaviota.

Petroleum Reserves in California.

Two reserves of public lands have been established to assure the Navy a supply of oil in case of need. These reserves are in the Elk Hills and the Buena Vista Hills, Kern County. The public lands within these areas have been withdrawn from all forms of entry during the last three years, and in 1912 a special reservation for naval purposes was made.

Exports of Petroleum From the United States.

The quantity of oil exported from the United States is enormous, and has increased from 967,262,000 gallons in 1900 to 1,989,772,000 in 1913, and the value has increased during this period from $68,247,000 to $137,237,000.

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Production and Value of Petroleum in California in 1911 and 1912, by Districts and Counties, in Barrels.*

District and county	1911			1912		
	Quantity	Value	Price per barrel	Quantity	Value	Price per barrel
Coastal and southern:						
Los Angeles County—						
Los Angeles city	397,424	$268,574	$0.676	344,789	$211,896	$0.615
Newhall						
Puente						
Salt Lake-Sherman						
Whittier						
Orange County—						
Fullerton	16,247,804	10,281,176	.633	15,863,404	9,775,105	.616
Ventura County—						
Santa Paula						
Santa Barbara County—						
Lompoc						
Santa Maria						
Summerland	63,238	45,458	.719	65,376	44,295	.677
San Luis Obispo County	20,462	12,072	.590	20,123	11,977	.595
Santa Clara County						
San Joaquin Valley:						
Fresno County—						
Coalinga	18,483,751	9,100,371	.492	19,911,820	8,768,308	.441
Kern County—						
Lost Hills				1,367,359	$652,927	.477
Kern River	13,225,713	$4,922,735	.372	12,558,439	5,399,914	.422
McKittrick[1]	5,149,226	1,798,279	.349	5,881,996	2,350,096	.399
Midway	21,196,475	9,830,922	.464	23,928,368	9,713,362	.405
Sunset	6,350,298	2,459,498	.387	6,509,093	2,285,713	.351
Totals	45,921,712	$19,011,429	.414	50,245,255	$20,402,012	.406
Grand totals	81,134,391	$38,719,080	.477	86,450,767	$39,213,588	.454

[1]Includes Lost Hills.

Production of Petroleum in California, 1903-1912, by Counties, in Barrels.

Year	Fresno	Kern	Los Angeles	Orange	Santa Barbara	Ventura	San Mateo	Santa Clara	Total
1903	2,138,058	18,077,900	2,087,627	1,413,782	306,066	348,296	5,137	5,607	24,382,472
1904	5,114,958	19,608,045	2,102,502	1,473,335	789,006	517,770	1,500	41,928	29,649,434
1905	10,967,015	14,487,967	3,469,433	1,429,688	2,684,837	337,970		50,563	33,427,473
1906	7,991,039	14,520,854	3,449,119	2,082,637	4,774,361	299,124		[1]31,464	33,098,598
1907	8,871,723	15,662,156	3,477,235	2,604,982	8,706,077	357,094		[1]77,108	39,748,375
1908	10,386,168	18,132,893	4,692,495	3,558,714	7,816,682	379,044		[1]88,741	44,854,737
1909	14,795,459	23,831,768		16,774,195				[1]70,179	55,471,601
1910	18,387,750	37,896,727		16,665,678				[2]60,405	73,010,560
1911	18,483,751	45,921,712		16,708,466				[2]20,462	81,134,391
1912	19,911,820	50,245,255		16,273,569				[2]20,123	86,450,767

*From Reports of the U. S. Geological Survey.
[1]Includes oil produced in San Luis Obispo County.
[2]Production of Santa Clara and San Luis Obispo Counties.

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Production of Petroleum in California in 1911 and 1912, by Districts and Counties, With Increase or Decrease and Percentage Thereof, in Barrels.*

District and county	1911	1912	Increase	Decrease	Percentage	
					Increase	Decrease
Coastal and southern:						
Los Angeles County—						
Los Angeles city	397,424	344,789		52,635		13.24
Newhall						
Puente						
Salt Lake-Sherman						
Whittier						
Orange County—						
Fullerton	16,247,804	15,863,404		384,400		2.37
Ventura County—						
Santa Paula						
Santa Barbara County—						
Lompoc						
Santa Maria						
Summerland	63,238	65,376	2,138		3.38	
San Luis Obispo County	20,462	20,123		339		1.66
Santa Clara County						
San Joaquin Valley:						
Fresno County—						
Coalinga	18,483,751	19,911,820	1,428,069		7.73	
Kern County—						
Los Hills[1]						
Kern River	13,225,713	12,558,439		667,274		5.05
McKittrick[2]	5,149,226	7,249,355	2,100,129		40.79	
Midway	21,196,475	23,928,368	2,731,893		12.89	
Sunset	6,350,298	6,509,093	158,795		2.50	
Totals	45,921,712	50,245,255	4,323,543		9.42	
Grand totals	81,134,391	86,450,767	5,147,744		6.34	

[1]Included in McKittrick.
[2]Includes Lost Hills.

Production and Value of Petroleum in California, 1908-1912, by Districts, in Barrels.

Year	Coastal and Southern		San Joaquin Valley		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
1908	16,335,676	$9,296,743	28,519,061	$14,136,759	44,854,737	$23,433,502
1909	16,844,374	9,737,616	38,627,227	21,019,097	55,471,601	30,756,713
1910	16,726,083	10,532,080	56,284,477	25,217,393	73,010,560	35,749,473
1911	16,728,928	10,607,280	64,405,463	28,111,800	81,134,391	38,719,080
1912	16,298,692	10,043,273	70,157,075	29,170,315	86,450,767	39,213,588

*From the Reports of the U. S. Geological Survey.

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Estimated Production by Fields, in 1913.

Field	Wells completed	Wells producing January, 1913	Total production, barrels
Kern River	33	1,397	9,980,940
McKittrick	49	254	5,731,087
Midway and Sunset	241	1,214	39,024,973
Lost Hills and Belridge	80	185	4,040,085
Coalinga	64	867	18,604,597
Lompoc and Santa Maria	16	221	5,816,711
Ventura County and Newhall	37	409	1,022,117
Los Angeles, Puente and Salt Lake	17	682	2,915,334
Whittier-Fullerton	36	514	10,640,362
Summerland		122	62,365
Watsonville	2		27,375
Totals	575	5,865	97,865,946
Total production, 1913			97,865,946
Consumption			97,083,728
Surplus			782,218
Gain in production, 1913			7,792,744
Gain in consumption, 1913			13,674,098
Total surplus January 1, 1914			47,870,177

Estimated Monthly Production, 1913.

	Barrels
January	7,566,789
February	7,206,198
March	7,986,407
April	7,927,041
May	8,049,715
June	8,030,111
July	8,427,081
August	8,812,793
September	8,655,341
October	8,236,649
November	8,367,151
December	8,491,438
Total	97,756,714

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SUMMARY.

Production of Petroleum in California, 1870-1913.

Year	Barrels of 42 gallons	Value
1870	3,600	$5,125
1871	5,200	7,370
1872	6,500	9,876
1873	7,200	10,920
1874	7,700	11,540
1875	8,400	12,090
1876	12,000	15,410
1877	13,000	18,140
1878	15,227	22,780
1879	19,858	29,672
1880	40,552	68,450
1881	99,862	130,678
1882	128,636	172,730
1883	142,857	207,540
1884	262,000	428,600
1885	325,000	613,920
1886	377,145	642,785
1887	678,572	1,357,144
1888	690,333	1,380,666
1889	303,220	368,048
1890	307,360	384,200
1891	323,600	401,264
1892	385,049	561,333
1893	470,179	608,092
1894	783,078	1,064,521
1895	1,245,339	1,000,235
1896	1,257,780	1,180,793
1897	1,911,569	1,918,269
1898	2,249,088	2,376,420
1899	2,677,875	2,660,793
1900	4,329,950	4,152,928
1901	7,710,315	2,961,102
1902	14,356,910	4,692,189
1903	24,340,839	7,313,271
1904	29,736,003	8,317,809
1905	34,275,701	9,007,820
1906	32,624,000	9,238,020
1907	40,311,171	16,783,943
1908	48,306,910	26,566,181
1909	58,191,723	32,398,187
1910	73,010,560	35,749,473
1911	78,195,139	40,552,088
1912	90,073,202	43,000,000
1913 (estimated)	97,756,714	46,000,000

The estimates of the output do not always agree, as some authorities include the quantity used in the field, which amounts to about 5,000,000 gallons annually.

Of the fourteen states now producing petroleum, the date of first production was as follows:

Year	State	Barrels
1859	Pennsylvania and New York	2,000
1876	California	12,000
1876	West Virginia	120,000
1876	Ohio	31,763
1883	Kentucky and Tennessee	4,755
1887	Colorado	76,295
1889	Indiana	33,375
1889	Illinois	1,460
1889	Kansas	500
1889	Texas	48
1889	Missouri	20
1891	Oklahoma	30
1894	Wyoming	2,369
1902	Louisiana	548,617

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Rank of Producing State With Quantity and Value of Petroleum Produced in 1912.

State	Rank	Quantity	Per-centage	State	Rank	Value	Per-centage
California	1	86,450,767	38.92	California	1	$39,213,588	23.94
Oklahoma	2	51,427,071	23.15	Oklahoma	2	34,672,604	21.17
Illinois	3	28,601,308	12.88	Illinois	3	24,332,605	14.85
West Virginia	4	12,128,962	5.46	West Virginia	4	19,927,721	12.16
Texas	5	11,735,057	5.28	Pennsylvania	5	12,886,752	7.87
Louisiana	6	9,263,439	4.17	Ohio	6	[1]12,085,998	7.38
Ohio	7	[1]8,969,007	4.04	Texas	7	8,852,713	5.40
Pennsylvania	8	7,837,948	3.53	Louisiana	8	7,023,827	4.29
Kansas	9	1,592,796	.72	New York	9	1,401,880	.86
Wyoming	10	1,572,306	.71	Kansas	10	1,095,698	.67
Indiana	11	970,009	.44	Indiana	11	885,975	.54
New York	12	874,128	.39	Wyoming	12	798,470	.49
Kentucky	13	484,368	.22	Kentucky	13	424,842	.26
Colorado	14	206,052	.09	Colorado	14	199,661	.12
Michigan	15	[2]	-------	Michigan	15	[2]	-------
Total	-------	222,113,218	100.00	Total	-------	163,802,334	100.00

[1]Includes Michigan.
[2]Included in Ohio.

World's Production of Crude Petroleum, 1909-1912, by Countries, in Barrels and Metric Tons.

Country	1909	1910	1911	1912			
				Rank	Barrels	Metric tons	Per-centage of total produc-tion
United States	183,170,874	209,557,248	220,449,691	1	222,113,218	29,615,096	63.25
Russia	65,970,350	70,336,574	66,183,691	2	68,019,208	9,317,700	19.37
Mexico	2,488,742	3,332,807	14,051,643	3	16,558,215	2,207,762	4.71
Dutch East Indies	11,041,852	11,030,620	12,172,949	5	10,845,624	1,478,132	3.09
Roumania	9,327,278	9,723,806	11,107,450	4	12,991,913	1,806,942	3.70
Galicia	14,932,799	12,673,688	10,519,270	6	8,535,174	1,187,007	2.43
India	6,676,517	6,137,990	6,451,203	7	7,116,672	989,801	2.03
Japan	1,889,563	1,930,661	1,658,903	9	1,671,405	222,854	.48
Peru	1,316,118	1,330,105	1,368,274	8	1,751,143	233,486	.50
Germany	1,018,837	1,032,522	1,017,045	10	995,764	[1]140,000	.28
Canada	420,755	315,895	291,096	11	243,614	32,612	.07
Italy	42,388	42,388	74,709	12	[1]86,286	[1]12,000	.02
Other	[1]30,000	[1]30,000	[1]200,000	-------	250,000	33,333	.07
Total	298,326,073	327,474,304	345,512,185	-------	351,178,236	47,276,725	100.00

[1]Estimated.

Imports of Petroleum, 1900-1913.

Year	Free gallons	Value	Dutiable gallons	Value
1900	2,354,720	$217,405	19,509	$3,042
1910	13,693,228	609,400	*2,156	644
1911	38,775,884	2,143,661	----------	----------
1912	160,502,114	3,654,453	----------	----------
1913	529,737,973	9,216,980	----------	----------

*From July 1st to August 5th, all mineral oils became free on August 6, 1910. Note the enormous increase of 369,235,859 gallons in 1913..

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Petroleum Exports (Domestic) in 1900 and 1913.

Description	Gallons	Value
1900		
Mineral, crude, including all natural oils, without regard to gravity	133,023,656	$7,364,162
Mineral, refined or manufactured:		
Naphthas and all lighter products of distillation	21,998,093	2,016,802
Illuminating oil	721,027,637	55,979,566
Lubricating and heavy paraffin oil	74,583,769	9,744,367
Residiuum, tar and all from which the light bodies have been distilled	16,629,186	506,853
Total mineral oils	967,262,341	$68,247,588
1913		
Mineral, crude, including all natural oils, without regard to gravity	195,642,935	$7,570,767
Mineral, refined or manufactured:		
Naptha and all lighter products of distillation:		
Illuminating oil	1,048,894,297	66,189,265
Gasoline	81,698,917	10,831,490
All other illuminating oil	101,821,572	14,269,878
Lubricating and heavy paraffin oil	213,671,499	29,574,410
Gas oil and fuel oil	320,529,925	8,305,715
All other	27,513,568	496,237
Total refined	1,794,129,778	$129,666,995
Total mineral	1,989,772,713	$137,237,762

NOTE.—California petroleum is exported to all quarters of the globe.

NATURAL GAS.

Since 1889, when natural gas was first produced and used in California, the natural gas industry has become of great importance, and to the United States belongs the credit of making natural gas a commercial product. In 1912 the pipe line, 117 miles long, was completed which conveys natural gas from the Buena Vista Hills, of Kern County, to consumers in Los Angeles and surrounding towns. This pipe line was built under great difficulties and the cost was enormous.

In 1912 the estimated value of the gas consumed was $1,134,456, as compared with $800,714 in 1911. This increase was not brought about by the discovery of new fields, but by an increased production and consumption of gas from districts already reported, particularly the Midway field, which came into prominence as a gas producer in 1910–1911, and is the most important and productive gas field in California at the present time. It is located in Kern County, near Taft. Large volumes of gas accompany the oil gushers in this field, and several wells are exclusively gas producers. Some of these wells have a capacity of 50,000,000 cubic feet or more per day. At the close of 1912 there were 15 gas wells in the Midway gas field and 3 in progress of drilling. The number of domestic consumers supplied in California in 1912 was 18,171, as compared with 10,598 in 1911, and the quantity and value of the gas consumed for domestic purposes increased from 543,392,000 cubic feet, valued at $317,467, in 1911, to 974,796,000 cubic feet, valued at $525,428, in 1912.

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The gas is supplied to domestic consumers in the following towns: Bakersfield, Taft, Fellows, Maricopa, Sacramento, Stockton, Santa Maria, Guadalupe, Betteravia, Suisun, Fairfield, Cement, Oxnard, Ventura, and Santa Paula.

Large quantities of gas are consumed in the oil fields for drilling and operating. It is estimated that the total quantity and value of the gas consumed in California for power purposes was 8,379,632 cubic feet, valued at $609,028, an average price of 7.27 cents per thousand cubic feet. A considerable quantity of gas produced from the oil wells of this State goes to waste annually, there being no means of disposing of it. The number of gas wells at the close of 1912 was 71, as compared with 66 at the beginning of the year.

Gasoline Produced in California, 1900-1912.

Year	Value
1900	$79,083
1901	67,602
1902	120,648
1903	104,521
1904	114,195
1905	133,696
1906	134,560
1907	168,397
1908	307,652
1909	446,933
1910	476,697
1911	800,714
1912	1,134,456

Acreage Controlled by Natural Gas Companies in 1912, by States.

State	In fee	Leased	Gas rights	Total
Alabama	570	216,000		216,570
Arkansas	600	20,059		20,659
California	2,434	7,690		10,124
Colorado		195		195
Illinois	3,568	165,337	17,342	186,247
Indiana	120,020	173,979	8,692	302,691
Kansas	25,405	366,475	17,870	409,750
Kentucky	2,970	113,947		116,917
Louisiana	15,625	301,664		317,289
Missouri	4,077	1,660		5,737
New York	10,689	490,506	1,205	502,400
North Dakota		20,000		20,000
Ohio	14,834	1,711,552	29,781	1,756,167
Oklahoma	7,047	1,058,144	95,857	1,161,048
Pennsylvania	115,242	1,675,116	397,030	2,187,388
Tennessee	500			500
Texas	7,660	153,919	6,369	167,948
West Virginia	124,880	2,202,642	691,794	3,019,316
Wyoming	2,968	3,970		6,938
Totals	459,089	8,682,855	1,265,940	10,407,884

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MINERALS.

California is rich in minerals, but as yet comparatively little has been done, with the exception of gold mining, and in more recent years in the petroleum fields, to develop its vast resources. The great difficulty in the way of opening up some of these valuable deposits is the want of transportation facilities.

The existence of gold had long been known in California, and washing had been carried on in the southern part of the State, near San Fernando Mission, as early as 1841. After the discovery of gold in the northern part of the State in 1848 there was a rush of immigration during the fall and winter of that year, and the excitement continued during the three succeeding years, but fell off in a marked degree in 1854. In 1852 the "hydraulic process" was introduced. The auriferous belt of California extends through the northern and central parts of the State and from the summit of the Sierra to the San Joaquin and Sacramento valleys. The gold occurs in three types of deposits: River gravels, or placers, high panels, and veins. A great series of these veins, called the "Mother Lode," extends across Tuolumne, Calaveras, Amador, and El Dorado counties.

The State annually produces about $19,000,000 to $20,000,000 in gold, much depending on the "water season." The largest amount, $81,294,700, was produced in 1852. When the snow is light, many quartz mills have to shut down for a few months, owing to lack of water for power and the want of water to wash the gravels of the placers.

Of the placers the most important producers are the gold dredges, which yield about 85 per cent of the placer gold, or 40 per cent of the total gold output of the State from all sources, and the production by dredging has been gradually increased in recent years.

Borax, magnesite, and chrome production in the United States come solely from California. Eighty per cent of the domestic supply of quicksilver and platinum is mined in this State. California leads all other states in the Union in the value of petroleum and gold produced; is first of all states west of the Mississippi in the value of her total mineral production, and is only outranked by a few of the great iron and coal producing states of the East. The value of the total mineral output for 1913 is estimated at $95,000,000.

In addition to the precious metals, the output of a number of other selected minerals is also given for a number of years, as an illustration of the varied resources of the State, as space will not allow a complete list in detail. The following summaries are compiled from the reports of the State Mining Bureau:

Total Gold Production of California, 1909-1913.*

Gold is more widely distributed than any other substance thus far mined in California, thirty-three counties out of the fifty-eight in the State showing a gold yield in 1909, and gold is known to exist in several others. Gold was discovered by James W. Marshall, on January 24, 1848, at Sutter's Mill, near Coloma, El Dorado County. The value of

*The complete Output and Value of Minerals for 1913 has not yet been issued.

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the gold produced since that year, until 1912, amounts to about $1,567,680,946.

Year	Value	Year	Value
1890	$12,309,793	1902	$16,910,320
1891	12,728,869	1903	16,471,264
1892	12,571,900	1904	19,109,600
1893	12,422,811	1905	19,197,043
1894	13,923,281	1906	18,732,452
1895	15,334,317	1907	16,727,928
1896	17,181,562	1908	18,761,559
1897	15,871,401	1909	20,237,870
1898	15,906,478	1910	19,715,440
1899	15,336,031	1911	19,738,908
1900	15,863,355	1912	19,713,478
1901	16,989,044	1913 (estimated)	20,000,000

Total value, 1848-1912 (65 years), $1,567,680,946.

Silver.

Year	Value	Year	Value
1900	$1,510,344	1907	$751,646
1901	1,229,356	1908	873,057
1902	616,412	1909	896,250
1903	517,444	1910	993,646
1904	873,525	1911	673,336
1905	678,494	1912	799,584
1906	817,830	1913 (estimated)	800,000

The total value of silver obtained since 1887 is estimated at $22,844,000, and the average price in 1911, 53 cents per ounce, and in 1912, 61¼ cents.

Silver is found in twenty-six counties, Shasta being the leading producer.

Quicksilver.

Year	Flasks	Value	Year	Flasks	Value
1900	26,317	$1,182,786	1907	17,379	$663,178
1901	26,720	1,285,014	1908	18,039	763,520
1902	29,552	1,276,524	1909	16,217	773,788
1903	32,094	1,335,954	1910	17,665	799,002
1904	28,876	1,086,323	1911	19,109	879,205
1905	24,655	886,081	1912	20,600	866,024
1906	19,516	712,334	1913 (estimated)		700,000

NOTE.—Flasks contain 75 pounds since June 1, 1904. Average price in San Francisco in 1901, $48.46; in 1906, $36.50; in 1911, $46.01, and in 1912, $42.04.

Eight counties reported a production of quicksilver during 1912, against 9 for 1911. California supplies about 80 per cent of the quicksilver production in the United States. San Benito County is the largest producer, followed by Santa Clara, Lake, San Luis Obispo, Sonoma, and Fresno.

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Copper.

Year	Pounds	Value	Year	Pounds	Value
1900	29,515,512	$4,748,242	1907	32,602,945	$6,341,387
1901	34,931,788	5,501,782	1908	40,868,772	5,350,777
1902	27,860,162	3,239,975	1909	65,727,736	8,478,142
1903	19,113,861	2,520,997	1910	53,721,032	6,680,641
1904	29,974,154	3,969,995	1911	36,838,024	4,604,753
1905	16,997,489	2,650,605	1912	34,169,997	5,638,049
1906	28,726,448	5,522,712	1913 (estimated)		5,500,000

Copper is produced in thirteen counties, Shasta being by far the largest producer.

Platinum.

Year	Ounces	Value	Year	Ounces	Value
1900			1907	300.07	$6,255
1901	250	$3,200	1908	706	13,414
1902	39	468	1909	416	10,400
1903		1,052	1910	337	8,386
1904		1,849	1911	511	14,873
1905	200	3,320	1912	603	19,731
1906	91.46	1,647			

Gems.

Year	Value	Year	Value
1900	$20,500	1907	$232,642
1901	40,000	1908	208,950
1902	162,100	1909	193,700
1903	110,500	1910	237,475
1904	136,000	1911	51,824
1905	148,500	1912	23,050
1906	497,090		

Gems are found in six counties, San Diego and Tulare counties being the largest producers.

Asphalt.

Year	Tons	Value	Year	Tons	Value
1900	12,575	$253,950	1907	79,718	$1,058,400
1901	21,634	313,219	1908	105,443	1,082,376
1902	34,511	349,344	1909	136,664	1,707,159
1903	41,670	503,659	1910	184,967	2,125,122
1904	56,187	672,910	1911	180,000	2,250,000
1905	40,304	285,290	1912	250,000	2,500,000
1906	77,756	777,560			

Asphalt is found in eight counties, principally in Kern and Los Angeles.

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Bituminous Rock.

Year	Tons	Value	Year	Tons	Value
1900	25,306	$71,495	1907	24,122	$72,835
1901	24,052	66,354	1908	30,718	109,818
1902	33,490	43,411	1909	34,123	116,436
1903	21,944	53,106	1910	87,547	165,711
1904	45,280	175,680	1911	75,125	117,279
1905	24,753	60,436	1912	44,073	87,467
1906	16,077	45,204			

Only two counties produce bituminous rock, Santa Cruz leading in the production.

Coal.

Year	Tons	Value	Year	Tons	Value
1900	176,956	$535,531	1907	23,734	$55,849
1901	150,724	401,772	1908	18,496	55,503
1902	88,460	248,622	1909	49,389	216,913
1903	93,026	265,383	1910	11,033	23,484
1904	79,062	376,494	1911	11,047	18,297
1905	46,500	144,500	1912	14,848	39,092
1906	24,850	61,600			

Borax.

Year	Pounds	Value	Year	Pounds	Value
1900	51,674,000	$1,013,251	1907	106,825,000	$1,200,913
1901	14,442,000	982,380	1908	44,400,000	1,117,000
1902	34,404,000	2,234,994	1909	33,257,000	1,163,960
1903	68,860,000	661,400	1910	33,656,000	1,177,960
1904	91,294,000	698,810	1911	50,945,000	1,456,672
1905	97,068,000	1,019,158	1912	42,135,000	1,122,713
1906	116,346,000	1,182,410			

Salt.

Year	Tons	Value	Year	Tons	Value
1900	89,338	$204,754	1907	88,063	$310,967
1901	126,218	366,376	1908	121,764	281,469
1902	115,208	205,876	1909	155,680	414,708
1903	102,895	211,365	1910	174,920	395,417
1904	95,968	187,300	1911	173,332	324,255
1905	77,118	141,925	1912	185,721	383,370
1906	101,650	213,228			

Salt is produced by seven counties, Alameda being the largest producer.

Magnesite.

Year	Tons	Value	Year	Tons	Value
1900	2,252	$19,333	1907	6,405	$57,720
1901	4,726	43,057	1908	10,582	80,822
1902	2,830	20,655	1909	7,942	62,588
1903	1,361	20,515	1910	16,570	113,887
1904	2,850	9,298	1911	8,858	67,430
1905	3,933	16,221	1912	10,512	105,120
1906	4,032	40,320			

Magnesite is found in Fresno, Riverside, Santa Clara, and Tulare counties, the latter having the largest output.

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TABLE XXXVI.

Production of Minerals by Counties, 1910-1912.

(From the California State Mining Bureau.)

Substance	1910	1911	1912
Asbestos	$20,000 00	$500 00	$2,700 00
Barytes	5,640 00	2,207 00	2,812 00
Bituminous rock	165,711 00	117,279 00	87,467 00
Borax	1,177,960 00	1,456,672 00	1,122,713 00
Brick	2,934,731 00	2,638,121 00	2,940,290 00
Cement	7,485,715 00	9,085,625 00	6,074,661 00
Chrome	9,707 00	14,197 00	11,260 00
Clay	324,099 00	252,759 00	215,683 00
Coal	23,484 00	18,297 00	39,092 00
Copper	6,680,641 00	4,604,753 00	5,638,049 00
Crushed rock	[1]	3,610,357 00	[2]
Feldspar	5,720 00	4,560 00	6,180 00
Fuller's earth	3,820 00	5,294 00	6,500 00
Gems	237,475 00	51,824 00	23,050 00
Gold	19,715,440 00	19,738,908 00	19,713,478 00
Granite	417,898 00	355,742 00	[3]
Gypsum	129,152 00	101,475 00	117,388 00
Infusorial earth	17,617 00	19,670 00	17,074 00
Iron ore	900 00	558 00	2,508 00
Lead	134,082 00	63,173 00	61,653 00
Lime	1,058,891 00	390,988 00	464,440 00
Limestone	[4]	452,790 00	570,248 00
Macadam	1,104,526 00	[5]	[6]
Magnesite	113,887 00	67,430 00	105,120 00
Manganese	4,235 00	40 00	400 00
Marble	50,200 00	54,103 00	74,120 00
Mineral paint	2,040 00	1,184 00	1,800 00
Mineral water	522,009 00	590,654 00	529,384 00
Natural gas	1,676,367 00	491,859 00	940,076 00
Paving blocks	198,916 00	210,819 00	[7]
Petroleum	37,689,542 00	40,552,088 00	41,868,344 00
Platinum	8,386 00	14,873 00	19,731 00
Pumice	None	None	2,500 00
Pyrite	179,862 00	182,954 00	203,470 00
Quicksilver	799,002 00	879,205 00	866,024 00
Rubble	1,673,164 00	[8]	[9]
Salt	395,417 00	324,255 00	383,370 00
Sand, glass	8,165 00	8,672 00	15,404 00
Sand, quartz	10,100 00	None	None
Sandstone	80,443 00	127,314 00	22,574 00
Silver	993,646 00	673,336 00	799,584 00
Slate	8,000 00	None	None
Soapstone	7,260 00	None	7,350 00
Soda	11,862 00	52,887 00	37,094 00
Stone industry*			5,473,928 00
Tungsten	208,245 00	127,706 00	206,000 00
Zinc	None	152,751 00	298,866 00
Totals	$86,293,957 00	$87,497,897 00	$88,972,385 00
Asphalt	2,125,122 00	2,250,000 00	2,500,000 00
Total including asphalt	$88,419,079 00	$89,747,879 00	$91,472,385 00

[1]Given as macadam and rubble. [2 3 6 7 9]Included in "stone industry." [4]Included in lime. [5 8]Included in crushed rock.

*Stone industry includes all crushed rock, granite, paving blocks, etc.

NOTE.—For production and value of minerals, by counties, for 1900, and 1906-1911, see Report for 1912, pages 231-232.

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TABLE XXXVII.

Value of Minerals Produced, by Counties, 1910-1912.

(From the California State Mining Bureau.)

County	1910	1911	1912
Alameda	$1,205,387 00	$799,639 00	$794,961 00
Alpine			*
Amador	2,785,767 00	2,993,670 00	2,925,202 00
Butte	2,529,179 00	2,406,856 00	2,403,675 00
Calaveras	2,026,166 00	1,970,059 00	2,051,781 00
Colusa	148,005 00	138,227 00	70,165 00
Contra Costa	484,923 00	594,256 00	829,811 00
Del Norte	5,845 00	1,750 00	3,950 00
El Dorado	194,631 00	153,918 00	122,001 00
Fresno	9,505,699 00	9,711,463 00	8,897,685 00
Glenn	34,020 00	51,430 00	32,950 00
Humboldt	77,437 00	76,858 00	268,116 00
Imperial	97,656 00	105,044 00	30,000 00
Inyo	704,473 00	710,033 00	483,330 00
Kern	19,614,014 00	21,176,534 00	23,097,003 00
Kings	10,085 00	900 00	1,850 00
Lake	142,427 00	100,296 00	123,286 00
Lassen	83,152 00	[1]	
Los Angeles	5,525,317 00	5,407,863 00	5,594,513 00
Madera	133,766 00	80,201 00	112,285 00
Marin	183,885 00	232,731 00	122,200 00
Mariposa	346,245 00	175,752 00	214,294 00
Mendocino	500 00	1,600 00	300 00
Merced	71,064 00	49,548 00	45,000 00
Modoc	5,513 00	20,238 00	29,187 00
Mono	445,115 00	* 298,405 00	454,268 00
Monterey	162,523 00	74,536 00	132,749 00
Napa	244,410 00	220,399 00	266,708 00
Nevada	2,553,204 00	2,219,214 00	2,108,543 00
Orange	3,220,164 00	4,113,585 00	4,518,275 00
Placer	583,659 00	539,246 00	881,537 00
Plumas	200,870 00	230,010 00	196,997 00
Riverside	507,406 00	622,489 00	782,627 00
Sacramento	1,660,970 00	2,109,678 00	2,171,399 00
San Benito	584,343 00	558,846 00	494,068 00
San Bernardino	447,836 00	710,108 00	1,428,057 00
San Diego	374,874 00	419,008 00	305,683 00
San Francisco	120,126 00	119,636 00	151,147 00
San Joaquin	376,149 00	189,593 00	210,040 00
San Luis Obispo	215,322 00	75,556 00	31,564 00
San Mateo	279,872 00	233,985 00	216,582 00
Santa Barbara	5,334,960 00	3,411,107 00	4,111,258 00
Santa Clara	420,782 00	461,611 00	557,585 00
Santa Cruz	400,794 00	338,814 00	270,207 00
Shasta	8,203,677 00	5,406,461 00	5,825,819 00
Sierra	313,365 00	467,117 00	736,423 00
Siskiyou	527,178 00	553,037 00	598,713 00
Solano	255,169 00	188,848 00	203,073 00
Sonoma	283,113 00	238,610 00	346,306 00
Stanislaus	223,061 00	315,219 00	295,673 00
Tehama	4,400 00	500 00	1,300 00
Trinity	508,433 00	620,950 00	733,755 00
Tulare	206,050 00	158,335 00	142,890 00
Tuolumne	755,591 00	1,240,734 00	1,353,706 00
Ventura	392,974 00	362,810 00	595,399 00
Yuba	3,209,645 00	3,011,689 00	2,775,132 00
Unapportioned	9,487,888 00	11,028,877 00	7,821,357 00
Totals	[2]$88,419,079 00	$87,497,879 00	$88,972,385 00

*Included in Stanislaus. [1]Included in Colusa. [2]Including asphalt.

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CALIFORNIA MINERAL SPRINGS.

There are a very large number of valuable mineral springs in California, which contain the same curative properties as the most famous spas of Europe, but they are not so widely known as they deserve. Among these are to be found alkaline, carbonated, chalybeate, epsom salts, saline, sulphur, soda, vichy, cold, warm, and hot, and also hot mud springs.

Mineral waters are generally divided into four classes: Acidulous, sulphurous, chalybeate, and saline.

Acidulous or carbonated waters are those charged with carbonic acid.

Sulphur waters are those impregnated with sulphureted hydrogen or soluble sulphides.

Chalybeate or ferruginous waters are those which contain in solution the salts of iron.

The fourth class, saline springs, embrace waters of the greatest diversity.

There was a considerable decrease in the mineral water sales of California during 1912, the sales reported being 2,089,951 gallons, as compared with 2,310,237 gallons in 1911, a decrease of 220,286 gallons, or 9.54 per cent. The value fell off $45,468, or 7.86 per cent, the average price of 25 cents per gallon remaining the same.

Regardless of the fact that half of California mineral water is reported to be sold for table use, California is second in the value of the medicinal water output. There are resorts at nineteen of the springs with accommodation for nearly 4,500 patrons, and the water at seventeen springs is used for bathing. Spring owners reported a total of 40,000 gallons of water used for the manufacture of soft drinks.

Production and Value of Mineral Waters in California, 1908-1912.

Year	Commercial springs	Quantity sold, gallons	Value	Price per gallon received at springs, cents
1908	40	1,960,770	$393,920	20.1
1909	44	2,179,187	444,230	20.4
1910	41	2,008,697	394,841	19.7
1911	40	2,310,237	578,439	25.0
1912	41	2,089,951	532,971	25.0

Summary of Mineral Springs.

Name of spring	Description	County
Adams Springs	Alkaline—Carbonated water	Lake.
Aetna Soda Springs	Alkaline water	Napa.
Aqua Calienta Springs	Sulphur (hot)	San Diego.
Aqua Calienta Springs	Sulphur (hot)	Kern.
Aqua de Vida Springs	Alkaline-saline. Sulphureted	Alameda.
Alabaster Cave Springs		El Dorado.
Alameda Warm Springs		Alameda.
Alder Glen Springs		Sonoma.
Alhambra Mineral Spring		Contra Costa.
Alkali Springs		Mono.
Allen Springs	Alkaline-Saline. Carbonated	Lake.
Alma Springs	Alkaline and chalybeate	Santa Clara.

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Summary of Mineral Springs—Continued.

Name of spring	Description	County
Anderson Mineral Springs	Mild alkalo—Sulphureted chalybeate and saline-acidulous; also hot sulphurous springs.	Lake.
Arrowhead Hot Springs	Upwards of 20 hot springs	San Bernardino.
Arroyo Grande Springs	Alkaline and carbonated	San Luis Obispo.
Azule Springs	Carbonated	Santa Clara.
Barcal Mineral Spring		Sonoma.
Bartlett Springs	Alkaline. Carbonated	Lake.
Bear Valley Hot Springs	Saline and calcic	San Bernardino.
Benton Hot Springs	Very hot, slightly alkaline	Mono.
Bitter Springs	Cold saline	San Bernardino.
Black Lake	Sulphurous and saline	Mono.
Blank's Hot Springs	Hot sulphur	Colusa.
Blodgett's Soda Springs	Alkalo-carbonated and sulphur	Santa Clara.
Boiling Lakes	Alkaline	Plumas.
Boiling Springs	Alkaline	Inyo.
Boiling Sulphur Springs	Alkalo-sulphureted	Mono.
Boyes Hot Spring		Sonoma.
Bonanza Hot and Cold Springs.	Hot carbonated and hot sulphureted.	Lake.
Borax Pond	Biborate of soda (borax)	Lake.
Borax Hot, Borax Marsh, and Borax Patch.	Borax	San Bernardino.
Borax Springs	On the edge of Clear Lake	Lake.
Boyd's Hot Springs	Alkaline, charged with carbonic acid gas.	Modoc.
Branhick's Boiling Springs.	Alkaline	Lassen.
Buckman's Spring		San Diego.
Byron Springs	Hot and cold; muriated saline, sulphurous, chalybeate, black sulphurous, mud and others.	Contra Costa.
Bythnia Springs		Santa Barbara.
California Geysers	Many various kinds; also mud springs.	Sonoma.
Calistoga Mineral Springs	Light sulphureted water; also hot.	Napa.
Campbell's Hot Springs	One cold and two hot; slightly saline and mildly sulphurous.	Sierra.
Carbonated Springs		Siskiyou.
Casa Diablo Hot Springs	Saline and sulphureted; also small boiling geysers.	Mono.
Castalian Mineral Springs	Mostly cold, sulphurous, alkaline and carbonated; one of the heaviest waters on the coast.	Inyo.
Castle Rock Springs	Sulphureted and carbonated soda.	Shasta.
Chalybeate Mineral Springs.		Tehama.
Coal Valley Boiling Springs.	Very hot; soda	Modoc.
Cold Soda Lake	Alkaline	Plumas.
Cold Soda Springs	Alkaline and carbonated	Tuolumne.
Congress Springs	Muriated-alkaline	Santa Clara.
Console Mineral Springs		San Bernardino.
Cook's Springs	Saline and sulphurous	Colusa.
Coronado Mineral Springs	Light alkalo carbonated	San Diego.
Corral De Leoz Warm Springs.	Highly charged with sulphur	San Diego.
Crystal Springs	Carbonated alkaline	Napa.
Crystal Springs		Los Angeles.
Cuyana Hot Springs	Sulphurous	Santa Barbara.
Desert or Cave Springs	Alkaline carbonated	Kern.
Duncan Springs	Alkaline-calcic	Mendocino.
El Granito Mineral Spring		San Diego.
Elliotta White Sulphur Spring.		Riverside.

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Summary of Mineral Springs—Continued.

Name of spring	Description	County
Elysian Springs		Los Angeles.
Elsinore Springs	Hot and cold; carbonated	San Diego.
Eureka Springs	Chlorinated—heavy; hot mud	Humboldt.
Fairmont Mineral Springs	Alkaline and carbonated	Sonoma.
Felt's Mineral Springs		Humboldt.
Fouts Springs		Colusa.
Fresno Hot Springs		Fresno.
Geyser Spa or Soda Springs.	Alkaline and chalybeate	Sonoma.
Gilroy Hot Springs	Alkalo-sulphureted	Santa Clara.
Glen Alpine Springs	Carbonated and chalybeate	El Dorado.
Gordon's Mineral Springs	Alkalo-saline	Lake.
Grizzle Springs		Colusa.
Harbin Hot Sulphur Springs.	Saline-sulphureted, arsenic and others.	Lake.
Hibb's Soda Springs		Shasta.
Highland Springs	Alkalo-saline and chalybeate, heavy saline and others.	Lake.
High Rock Springs	Hot alkaline	Lassen.
Hot Borate Springs	Borate water	Lake.
Hot Mud Springs	Sulphur	Siskiyou.
Hot Springs	(On Pahoa Island in Mono Lake)	Mono.
Hough's Mineral Springs		Lake.
Howard Springs	Alkalo-carbonated	Lake.
Iodine Springs		Lake.
Klamath Hot Springs	Alkalo-saline and sulphurous	Siskiyou.
Lake Tahoe or Carnelian Hot Springs.	Hot and cold; sulphurous and saline.	Placer.
Lepori Vichy Springs		Napa.
Kellogg's Springs	Saline and sulphureted	Napa.
Lane's Mineral Springs	Alkalo-sulphurous and chalybeate.	Calaveras.
Las Cruces Hot Springs		Santa Barbara.
Little Yosemite Soda Springs.	Alkalo-carbonated	Tulare.
Lytton Seltzer Springs	Alkalo-carbonated and chalybeate.	Sonoma.
Mark West Springs	Hot sulphur and hot mud	Sonoma.
Matilija Hot Springs	Hot and cold; sulphureted	Ventura.
Mission San Jose Hot Springs.		Alameda.
Mono Basin Warm Springs	Chlorinated and alkaline	Mono.
Mono Lake	Chlorinated (the Dead Sea of California).	Mono.
Montecito Hot Springs	Sulphurous	Santa Barbara.
Monterey Mineral Well		Monterey.
Napa Soda Springs	Alkaline-chalybeate	Napa.
Newsom's Arroyo Grande Springs.	Light salino-sulphureted	San Luis Obispo.
New Almaden Vichy Springs.	Vichy-alkalo-chalybeate	Santa Clara.
Nicholas Springs	Epsom salts and iron salts	Santa Cruz.
Nuvida Springs		San Diego.
Ojai Hot Sulphur Springs.	Hot and cold; carbonated and sulphureted.	Ventura.
Orr's Hot Springs		Mendocino.
Owen's Lake	The second Dead Sea in California; highly chlorinated and alkaline.	Inyo.
Pacific Congress Springs.	Alkalo-chalybeate	Santa Clara.
Palm Springs		Riverside.
Paraiso Hot Springs	Sulphur; hot soda, similar to Carlsbad of Austria.	Monterey.
Paso Robles Springs	Hot and cold, sulphur mud springs; alkaline-saline, sulphined.	San Luis Obispo.
Piedmont White Sulphur Springs.	Chalybeate and sulphur	Alameda.

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Summary of Mineral Springs—Continued.

Name of Springs	Description	County
Pinkhams Springs		Santa Barbara.
Purity Springs		Marin.
Radium Sulphur Springs		Los Angeles.
Redwing Springs		Lake.
Samuel Springs		Napa.
San Benito Springs		San Benito.
Rubicon Soda Springs		Placer.
San Bernardino Hot Springs.	Calcic and saline	San Bernardino.
San Jacinto Springs	Arsenic, white sulphur, soda, and mud.	Los Angeles.
San Juan Capistrano	Light carbonated	San Bernardino.
San Luis Hot Springs		San Luis Obispo.
San Marcos Sulphur Springs.		Santa Barbara.
San Rafael Springs	Slightly saline and carbonated.	Marin.
Santa Barbara Hot Springs.	Sulphurous, saline and chalybeate.	Santa Barbara.
Santa Rosa White Sulphur Springs.	Light-salino-sulphurous	Sonoma.
Santa Ysabel Cold and Hot Sulphur Springs.	Salino-sulphureted, sulphur mud springs and others.	San Luis Obispo.
Saratoga Springs		Inyo.
Saratoga Mineral Springs	Cold, contain sulphur, soda and iron.	Lake.
Seigler's Springs	Arsenic, soda, epsom salts	Lake.
Seltzer Springs	Alkaline-saline-calcic, carbonated.	Mendocino.
Shafer's Hot Springs	Saline and sulphates	Lassen.
Shasta Soda Springs	Carbonated and ferruginous	Siskiyou.
Simmons' Hot Sulphur Springs.		Colusa.
Skagg's Hot Springs	Alkalo-carbonated (heavy)	Sonoma.
Springs of Dos Palos	Chlorinated, warm	San Diego.
Summit Soda Springs	Alkalo-chalybeate	Placer.
Tamalpais Springs		Marin.
Tassajara Hot Springs	Saline and sulphurous	Monterey.
Thermal Acid Springs	Acid, sulphate	Inyo.
Tia Juana Springs		San Diego.
Tolenas Springs	Alkalo-saline and chlorinated	Solano.
Tule River Soda Springs		Tulare.
Tuscan or Lick Springs	Saline and sulphurous	Tehama.
Upper Soda Springs	Alkalo-carbonated or soda class	Siskiyou.
Vallejo Sulphur Springs		Solano.
Valley Springs		Calaveras.
Veronica Medicinal Spring		Santa Barbara.
Vito Nuevo Springs		Mono.
Vichy Springs	Alkalo-carbonated or soda class	Mendocino.
Volcanic Mineral Springs	(In Death's Valley)	Inyo.
Warner Hot Springs	Hot, sulphurous and saline	San Diego.
Watters Springs		Napa.
Wheeler's Hot Springs		Ventura.
White Sulphur Springs	Light sulphurated and alkaline	Napa.
Wilbur Springs	Thermal salino-sulphureted	Colusa.
Witter's Mineral Springs	Saline-chalybeate. Sulphureted	Lake.
Young's Natural Gas Well and Mineral Springs.		Lake.
Zem Zem	Highly carbonated	Lake.

NOTE.—There are many other unnamed and undeveloped springs in California, including geysers, salt, thermal, hot, warm and white sulphur springs. For fuller details and analysis of the numerous springs, see "Mineral Springs and Health Resorts of California," by Winslow Anderson, 1890, and "Mineral Waters of the United States," by Jas. K. Crook, 1899.

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PART VIII.

CALIFORNIA FORESTS. THE LUMBER INDUSTRY. MANUFACTURES.

NATIONAL FORESTS.

Grazing Permits; Ownership of Forests by Counties; National Monuments; Lumber Industry—Lumber Cut, 1880–1909; Value of Lumber, 1850–1909.

MANUFACTURES.

Summary of Fourteen Leading Manufactures; Manufacturing Industry, 1850-1909; Twenty-one Leading Cities; Transportation by Water—River Traffic.

The total area within the boundaries of the national forests was decreased in 1911 by presidential proclamation, which eliminated 4,598,705 acres and added 2,806,267 acres. While it will doubtless be necessary in the future to make small additions and eliminations from time to time, as conditions change, it is believed that the boundaries now established or planted may be regarded as fairly stable.

As the national forests consist largely of unsurveyed lands, the gross area figures are subject to correction. The area in California is larger than any other state in the Union, Idaho and Montana ranking next, with 19,000,000 acres each.

California	Acres
Gross area, June 30, 1910	27,968,510
Additions	732,378
Eliminations	883,400
Gross area, September 30, 1911	27,667,695
Alienated area	6,676,130
Net area, September 30, 1911	20,991,565

The amounts paid to the State to be expended for roads and schools from the national forest receipts for 1910 was $60,752.91; for 1911, $53,716.87; for 1912, $62,052.82; for 1913, $74,541.

In the timber-sale policy of the Forest Service, provision is first made for local needs, present and future, and sale of timber which will enter into the general markets is considered only when it is clear that an excess over the permanent supply required by local industries exists.

Number of Timber Sales, Classified According to Amount of Sale, 1913.

Amount	Number
Under $100	555
From $100 to $500	24
From $500 to $1,000	5
From $1,000 to $5,000	14
Over $5,000	9
Total number of sales	607

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Timber Sold and Cut in National Forests.

Year	Timber sold, board-feet	Value	Timber cut under sales, board-feet	Value
1911	112,438,000	$295,536 22	37,899,000	$80,243 65
1912	109,214,000	232,697 81	43,914,000	97,239 33
1913	1,064,804,000	2,324,936 08	52,419,000	108,708 74

Total number of timber sales in 1912 was 635, compared with 543 in 1911.

Free timber is accorded to residents in or near the national forests who need material for personal use and who can not reasonably be expected to purchase. Special consideration is given to new settlers and prospectors for minerals. Free use is also granted on a liberal scale for cooperative enterprises and public purposes.

Free Use of Timber.

Year	Number of permits	Board-feet	Value
1911	3,085	9,197,000	$17,359 02
1912	2,756	8,490,000	14,797 96
1913	3,118	8,918,000	18,011 15

Reforestation.

Year	Sown acres	Planted acres	Total
1911	2,659	169	2,828
1912	632.69	188.60	821.29
1913	133.16	276.77	409.93

Grazing Permits.

Year	Number of permits	Cattle, number	Horses, number	Hogs, number	Number of permits	Sheep and lambs	Number of goats
1911	2,382	151,582	9,824	3,867	298	368,781	13,464
1912	2,521	169,361	10,403	3,480	367	432,974	15,235
1913	2,664	169,951	11,765	2,360	377	435,856	13,249

Predatory Animals Destroyed.

Animal	1910	1911	1912	1913
Bears	73	37	12	6
Mountain lions	23	5	3	3
Wolves	2	3	2	----------
Wolf pups	----------	2	----------	----------
Coyotes	903	743	478	337
Wildcats	309	193	160	132
Lynxes	37	15	2	2
Totals	1,347	*998	657	480

*Also 2 wolverines and 6 foxes, or total of 1,006 animals.

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LAND CLASSIFICATION.

A system of land classification has been established to cover all the forests affording any prospect of agricultural development within them. Its purpose is to segregate and make available for the establishment and development of homes all national forest land which will serve its best use by being brought under cultivation.

Land Classification Projects in California.

National forest	Project	Area, acres
Angeles	Cajon	135,000
	San Gabriel	175,000
Cleveland	Laguna	165,000
Klamath	Klamath River	80,000
Lassen	Hat Creek	80,000
Santa Barbara	Matilija	160,000
Santa Clara River		75,000
Total		870,000

Location, Date Latest Proclamation Effective, and Area of the National Forests on September 30, 1911, in California.

(From reports of the Forest Service, Department of Agriculture.)

State or territory and forests	Proclamation effective	Area
California:		
Angeles	Nov. 25, 1910	1,265,300
California	Oct. 12, 1910	1,061,000
Cleveland	Dec. 16, 1910	2,220,800
Crater[1]	July 1, 1911	61,100
El Dorado[2]	July 28, 1910	835,800
Inyo[3]	Feb. 23, 1911	1,337,780
Kern	Jan. 30, 1911	1,934,275
Klamath[4]	July 1, 1911	1,688,580
Lassen	Dec. 30, 1910	1,397,000
Modoc	Dec. 23, 1910	1,578,200
Mono[5]	June 30, 1911	883,150
Monterey	Dec. 12, 1910	501,150
Plumas	July 28, 1910	1,433,600
Santa Barbara	July 1, 1910	2,348,200
Sequoia	July 1, 1910	1,220,000
Shasta	Dec. 16, 1910	1,578,200
Sierra	July 1, 1910	1,743,000
Siskiyou[6]	July 1, 1911	406,260
Stanislaus	July 12, 1910	1,136,500
Tahoe[7]	July 28, 1910	1,210,500
Trinity	Dec. 16, 1910	1,827,300
Total		27,667,695
Alienated		6,676,130
Net area		20,991,565

[1]Total of Crater in California and Oregon, 1,080,500 acres.
[2]Total of El Dorado in California and Nevada, 836,000 acres.
[3]Total of Inyo in California and Nevada, 1,413,110 acres.
[4]Total of Klamath in California and Oregon, 1,697,780 acres.
[5]Total of Mono in California and Nevada, 1,366,440 acres.
[6]Total of Siskiyou in California and Oregon, 1,694,250 acres.
[7]Total of Tahoe in California and Nevada, 1,272,470 acres.

The acreage of National Reserves in California is 27,667,000; the acreage of state timber lands 2,000; and the acreage of private lands 8,500,000.

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Of the standing timber in this State a very large percentage is now in private ownership, the total acreage amounting to 4,555,941.

Forest Fires in California.

Forest fires do a vast amount of damage, most of which could be prevented.

Ownership of Forests.

County	Acres	County	Acres
Alpine	3,270	Plumas	224,717
Amador	17,903	Riverside	4,784
Butte	89,787	San Benito	2,960
Calaveras	68,663	San Bernardino	10,940
Del Norte	109,600	San Diego	23,460
El Dorado	96,820	San Luis Obispo	2,040
Fresno	19,983	Santa Barbara	160
Glenn	16,796	Santa Cruz	19,956
Humboldt	486,950	Shasta	429,512
Kern	8,600	Sierra	134,176
Lake	10,320	Siskiyou	698,180
Lassen	244,434	Sonoma	162,474
Madera	23,176	Tehama	126,358
Marin	11,597	Trinity	333,840
Mariposa	35,073	Tulare	83,358
Mendocino	475,318	Tuolumne	131,378
Modoc	265,317	Ventura	803
Mono	15,320	Yuba	19,400
Monterey	81,518		
Nevada	60,101	Total	4,555,941
Placer	156,949		

Year	Number of fires	Area burned, acres	Damage, value
1906	120	650,000	----------
1907	305	75,060	$8,601
1908	572	163,216	103,259
1909	638	357,269	600,000
1910	553	367,344	407,569
1911	797	66,508	51,083
1912	998	156,241	31,906
1913	1,971	559,370	511,077

National Monuments.

There are 159 national forests in the United States, of which 21 are in California.

The following five national monuments, situated within national forests, have been created under the act of June 8, 1906, for the preservation of objects of historic or scientific interest:

State or territory and forests	Proclamation effective	Area, acres
Cinder Cone, Lassen	May 6, 1907	5,120
Devil Postpile, Sierra	July 6, 1911	800
Lassen Peak, Lassen	May 6, 1907	1,280
Muir Woods	Jan. 9, 1908	295
Pinnacles	Jan. 16, 1908	2,080

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THE LUMBER INDUSTRY.

The timber of California is found upon the Sierra Nevada and Coast ranges, north of San Francisco Bay. A little is found in the Coast ranges farther south, and in those of southern California. The species consists mainly of yellow and sugar pine, redwood, and red fir. Redwood is found in a narrow strip stretching from the Oregon line southward, closely bordering the coast, nearly to the bay of San Francisco. In this strip, comprising some 2,000 square miles, there is estimated to be 75,000,000,000 feet of redwood in a pure forest. This is probably the densest forest, as measured by the amount of lumber per acre, in the world. Lumbering is carried on mainly about Humboldt Bay, at Crescent City, near the Oregon line, and at various points in Mendocino County.

Yellow pine is found along the entire length of the Sierra Nevada and in the northern Coast ranges. It occupies in the Sierra a well-defined belt, which, in the southern part of the range, is limited by a contour 3,000 feet above sea level, while northward it gradually descends, coming down to about 1,500 feet in the upper Sacramento Valley. Its upper limit is on an average about 8,000 feet, above which it is succeeded by species which are fitted to a colder climate. Throughout its range it is accompanied by sugar pine in the average proportion of about three of the former to one of the latter. The forest also contains a notable amount of incense cedar and of red fir. The composition of the forests in the northern part of the Coast ranges is quite similar to that in the Sierra, excepting that the proportion of red fir is somewhat greater.

Scattered about in the yellow pine forests, on the slope of the Sierra Nevada, at altitudes ranging from 4,000 to 6,000 feet, are ten groves, differing greatly in magnitude, of *Sequoia gigantea,* the big tree. These trees range in height up to 325 feet, and in diameter to a little over 30 feet. They do not appear in pure growth, but scattered through the yellow pine forest.

The wooded land of the State is estimated to have an area of 44,700 square miles, or 22 per cent of the total area of the State. The total amount of standing timber in the State was estimated in 1900 to be at least 200,000,000,000 feet, the principal species being redwood and yellow pine, with smaller amounts of sugar pine, red fir, and incense cedar. Redwood is the only important kind of lumber, the production of which is limited to one state. California has no competitor in its production, nor can it ever have, since there is no commercial supply of redwood timber elsewhere.

Lumber Cut, 1905-1912.

Year	Million feet, board measure	Year	Million feet, board measure
1905	1,077,499	1909	1,143,507
1906	1,348,599	1910	1,254,826
1907	1,345,943	1911	1,207,561
1908	996,115	1912	1,203,059

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Lumber, Lath and Shingles in 1909.

Species	Number of active mills	Million feet, board measure	Value	Average per thousand feet
Soft woods:				
Redwood	69	521,630	$7,720,124	$14 80
Douglas fir	100	88,852	943,608	10 62
Spruce	28	13,241	196,099	14 81
Western or yellow pine	184	364,748	6,752,076	18 51
Cedar	67	14,834	192,100	12 95
Sugar pine	71	88,822	1,634,325	18 40
White fir	72	48,306	676,767	14 01
Laurel	----------	26	650	25 00
Hemlock	----------	416	4,044	----------
Lodgepole	----------	452	4,068	----------
Total soft woods	----------	1,141,301	$18,123,211	
Hard woods:				
Oak	----------	2,180	141,678	----------
All other	----------	26	650	----------
Total hard woods	----------	2,206	$142,328	
Total soft woods	----------	1,141,301	18,123,211	
Grand totals	305	1,143,507	$18,265,539	

Rough Lumber, Lath and Shingles in 1909.

Product	Quantity		Value, 1909
	1899	1909	
Rough lumber, thousand feet b. m.	737,035	1,143,507	----------
Laths, thousands	11,507	32,615	$73,384
Shingles, thousands	650,090	574,342	833,671

Lumber, Lath and Shingles in 1912.

Lumber sawed (thousand feet, board measure) by 229 active mills.

Soft woods		Hard woods	
Douglas fir	105,625	Oak	3,667
Hemlock	1,348	Birch	150
Spruce	12,847	Ash	210
Western pine	365,169	Cottonwood	2
Redwood	496,796	All other	2,038
Cedar	18,507		
Sugar pine	128,376	Total hard woods	6,067
White fir	68,324	Total soft woods	1,196,992
Total soft woods	1,196,992	Grand total	1,203,059

Laths produced	18,954
Shingles produced	471,592

During the ten years, 1899 to 1909, the output of rough lumber in California increased 55.1 per cent and that of laths 183.4 per cent, while the production of shingles decreased 11.7 per cent. The period of most rapid growth in the industry was from 1899 to 1904, when the output of lumber increased 46.2 per cent. The woods which supply the raw material are almost exclusively conifers, the hardwood cut in 1909, practically all of which was California or tanbark oak, forming only one fifth of 1 per cent of the total lumber production during the year. A total of 521,630 thousand feet, board measure, or more than

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45.6 per cent of the lumber output in 1909, was California redwood, a species of timber which does not occur in saw-log size outside of California. Chief among the other species sawed into lumber in 1909 were western pine, with a production of 364,748 thousand feet, board measure; Douglas fir, with a production of 88,852 thousand feet; sugar pine, with a production of 88,822 thousand feet. The manufacture of shingles, while carried on to some extent in connection with that of lumber, nevertheless amounts practically to a separate industry. Over 88 per cent of the shingle output of the State for 1909 was manufactured from redwood, which timber possesses in very high degree the qualities most desirable in shingle material.

The term "white fir" is used as a designation for two or three firs of the Rocky Mountains and the Pacific coast. The lumber produced from them in no way resembles that of the Douglas fir, which, bontanically, is not a fir at all.

The average value per thousand feet at the mill was $13.10, the average for individual states ranging from $10.20 in Oregon to $14.01 in California.

Yellow Pine. Under the general term "yellow pine" is included all pine lumber which was produced east of the Rocky Mountains, with the exception of white, Norway, and jack pine. In the production of redwood, yellow pine, sugar pine, and white fir, California holds the first place.

Sugar Pine. The commercial range of this great giant of the white pine family is confined almost entirely to the regions of the Sierra in California, where 91.4 per cent of the total cut of 97,191,000 feet was produced in 1909. The output was 81.5 per cent greater than in 1899. The average value of the product per thousand feet in 1909 was 36 cents greater than in 1908, but $1.70 less than in 1907.

California Tanbark and Tanning Extract in 1909.

Description	Tons	Cost	Average cost per ton
Oak bark	36,005	$714,146	$19 83
Myrobalan nuts	620	20,470	33 02
All others	495	10,152	20 51
Totals	37,120	$744,768	$20 06

The average cost per ton in 1909, $10.31, was 73 cents more than in 1908. The highest average cost per ton was reported by California, $20.06. In the total quantity of bark, etc., used in 1909, eleven out of the twenty-one states showed gains over 1908, the greatest being 9,605 tons in California.

The lumber industry includes three distinct operations, which are in some cases carried on by the same organization, in others separately:

1. The logging industry, including the felling of timber, cutting it into lengths, and transporting it by rail or river or flume to the mill.

2. The sawmill industry, in which the raw material consists of saw-logs, the product of the lumber camps; the finished product of rough lumber, including beams, joists, scantling, boards, shingles, laths, etc.

3. The planing mill industry, in which the raw material consists of rough lumber and the finished product planed lumber, with such minor

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manufactures as are carried on in connection with these mills. In the United States this industry ranks fourth among the greatest manufacturing industries of the country, being exceeded in value of products only by iron and steel, the textile, and the slaughtering and meat-packing industries.

Value of California Lumber Industry, 1850-1910.

Year	Value of product
1850	$959,485
1860	3,943,881
1870	5,227,064
1880	4,428,950
1890	8,794,655
1900	13,764,647
1909	18,265,539

The ten largest holdings of timber lands comprise 2,448,094 acres, or approximately 42 per cent of all the privately-owned timber and cut-over land in the State. They are as follows:

	Acres
Central Pacific Railroad Company (S. P.)	921,311
T. B. Walker and associates	673,665
McCloud River Lumber Company	232,063
Diamond Match Company	159,499
Hammond Lumber Company	94,760
Union Lumber Company	80,350
L. E. White Lumber Company	79,540
Weed Lumber Company	71,458
C. A. Smith	69,768
Sierra Nevada Wood and Lumber Company	65,680

The Southern Pacific holding is the greatest in the United States—106,000,000,000 feet. It is difficult to give an adequate idea of its immensity. It stretches practically 680 miles along that railroad, between Portland and Sacramento. The fastest train over this distance takes thirty-one hours. During all that time the traveler is passing through lands a large portion of which, for 30 miles on each side belongs to the railroad, and in almost the entire strip this corporation is the dominating owner of both timber and land.

The holdings under 2,000 acres are too numerous to publish, but they are summarized as follows:

Size of holdings	Number of holdings	Amount in acres		Total
		Timber	Cut over	
Below 1,000 acres	1,087	460,093	79,071	539,164
1,000 to 2,000 acres	196	195,687	59,321	255,008
2,000 acres and over	286	4,081,794	947,494	5,029,288
Grand total		4,737,554	1,085,886	5,823,440

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MANUFACTURES.

Although agriculture and mining are the principal industries in California, the State shows a marked growth in manufactures during the last forty years. The gross value of products per capita of the total population increased from $119 in 1869 to $223 in 1909.

The natural resources of the State give rise to several of its leading industries, such as the lumber industry, canning and preserving, flour milling and gristmilling, petroleum refining, the refining of beet sugar, the wine industry, and the manufacture of cement.

The high cost of fuel, the greater part of which had to be brought from outside of the State, retarded the early development of manufactures, but the development of the oil fields, and the utilization during recent years of electricity generated by water power have given a decided impetus to manufactures in California.

The statistics of manufacture do not include the United States Navy Yard at Mare Island, which in 1909 employed an average of 1,917 wage-earners, and the value of the work performed was $4,335,000.

The most important manufacturing industries are as follows:

Lumber and Timber Products. This industry embraces logging operations, sawmills, planing mills, and establishments engaged in the manufacture of wooden packing boxes. It does not include mills engaged exclusively in custom sawing. The industry is the leading one in the State, giving employment in 1909 to 22,935 wage-earners, or 19.9 per cent of the total for all manufacturing industries, and the value of its products amounted to $45,000,000, or 8.5 per cent of the total.

The lumber industry is one of the seasonal industries. The number of wage-earners in January, the month of the minimum employment, was 14,585 less than the number in July, the month of maximum employment.

Slaughtering and Meat-Packing. This classification includes the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only. The animals slaughtered are largely cattle and sheep from the foothills and lower mountain slopes and from the plateau region of the northeastern part of the State, and southeastern Oregon, conditions in these sections being very favorable to stock raising. About half of the stock slaughtered is raised within the State. The fact that within recent years the meat packers have been able to overcome, through refrigeration, climatic difficulties, which required the excessive use of preservatives in salt meats, has been an important factor in the growth of this industry. The total value of products reported for the industry in 1909, $34,280,000, represents an increase of $18,463,000, or 116.7 per cent, as compared with the amount reported for 1899.

Canning and Preserving. This classification includes the canning of fruits and vegetables, fish, oysters, clams, etc., the preparation of pickled, smoked, and dried fish, the packing of dried fruits by packing houses which make a specialty of such business, and the manufacture of pickles, preserves, jellies, sauces, etc., but it does not include the drying and packing of fruits by the grower on the farm, nor does it include the canning of meats, soups, and similar products in meat-packing

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establishments (the statistics for which are included with those for the slaughtering and meat-packing industry). The canning, pickling, smoking and drying of fish and the canning of oysters form comparatively unimportant branches of the industry. California far exceeds any other state in the value of products for this industry, the amount reported for 1909 being $32,915,000, or 21 per cent of the total for the United States. Canning and preserving is a seasonal industry, giving employment to a large number of persons in July, August, September, and October, and to a comparatively small number during most of the other months of the year. The number of wage-earners employed in the industry varied from 2,781 in February to 16,047 in August.

Foundry and Machine Shop Products. This industry embraces, in addition to the general class of foundries and machine shops, establishments engaged in such special lines as the manufacture of gas machines and gas and water meters, hardware, plumbers' supplies, steam fittings and heating apparatus, and structural ironware. It does not, however, include establishments which manufacture distinctive products covered by other classifications, such as cash registers and calculating machines, or electrical machinery, apparatus, and supplies. This industry ranked third among the manufacturing industries of the State in 1909 in number of wage-earners, giving employment to 8,377, or 7.3 per cent of the total for all industries.

Flourmill and Gristmill Products. The statistics for all merchant mills grinding wheat, rye, buckwheat, corn or other grains are included in this classification. It does not, however, include factories making fancy cereals or other food preparations as a chief product, or mills doing custom grinding exclusively. The industry shows an increase of $12,143,000, or 93.1 per cent, in value of products during the decade 1899–1909.

Printing and Publishing. This classification includes job printing, the printing and publishing of books, newspapers and periodicals, and music, bookbinding, steel engraving, and lithographing. The 1,240 establishments reporting included 705 publishing newspapers and periodicals and 481 doing book and job work exclusively. The average number of wage-earners employed in the newspaper and periodical branch of the industry was 3,650, and the value of products $15,239,000; the average number of wage-earners engaged in book and job work was 2,907, and the value of products, $7,438,000. These two branches of the industry together employed 86.8 per cent of the average number of wage-earners, and reported 90.6 per cent of the total value of products for the entire industry in 1909.

Cars and General Shop Construction and Repairs by Steam Railroad Companies. This industry represents the work done in the car shops, but does not cover minor repairs in roundhouses. It is seventh in importance as measured by value of products, and shows a remarkable development for the ten-year period. In 1909 the industry gave employment to an average of 9,342 wage-earners, the second largest number reported for any manufacturing industry in the State, and the value of the work amounted to $18,719,000.

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Petroleum Refining. The refining of petroleum has made remarkable progress in the State during the last few years, the value of the products of the industry in 1909 being $17,878,000, or over twenty-five times as great as in 1899, when it was only $698,000.

Butter, Cheese and Condensed Milk. This industry, which in California is confined chiefly to the manufacture of butter, has made marked progress during the past decade, the value of products increasing from $3,583,000 in 1899 to $12,761,000 in 1909, a gain of 256.2 per cent. The manufacture of cheese and condensed milk decreased materially during the period 1904–1909.

Leather, Tanned, Curried and Finished. The tanning, currying and finishing of leather did not become prominent in California until about 1861. From that time, however, it grew rapidly, and since 1877 the local supply of hides and skins has not been large enough to satisfy the requirements of the industry, so that it has been necessary to supplement it by hides and skins brought in from other states or imported from foreign countries.

Malt Liquors. This industry shows considerable growth for the decade, being greater, however, for the five-year period, 1899–1904, than for the following five-year period.

Wines. The extensive vineyards of California have placed the State far ahead of any other in wine industry. In 1909 the value of the products for the industry in the State, $8,937,000, represented 68.1 per cent of the total for the United States.

Gas, Illuminating and Heating. The manufacture of gas is notable in California, because of the extensive use of petroleum. On account of the lack of coal in the State, the product of the gas plant has been limited to the manufacture of carbureted water gas and oil gas. According to the statistics for 1909, the production of oil gas greatly exceeds that of carbureted water gas. The total value of products reported for the industry in 1909 was $8,927,000, an increase of $5,765,000, or 182.3 per cent over that for 1899.

Cement. California has numerous beds of soft limestone and clay which are relatively low in magnesia and which are being utilized to a considerable extent for the manufacture of Portland cement. In 1904 there were four establishments engaged in the industry, employing 596 wage-earners and reporting products valued at $1,601,000, while in 1909 the industry had increased to eight establishments, giving employment to an average of 2,407 wage-earners and reporting a product valued at $6,504,000. The counties in which the industry is most extensively carried on, named in order of importance, are Solano, Santa Cruz, and San Bernardino.

The Automobile Industry. This industry, which in California had its beginning but a short time prior to 1904, shows a very high rate of increase, the value of products in 1909 being more than forty times as great as in 1904.

Engines and Power. The following shows the number of engines or other motors, according to their character, employed in generating power (including electric motors operated by purchased current) and their total horsepower in 1899 and 1909. The more general use of gas engines is shown, there being 765 such engines, with an indicated

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capacity of 10,115 horsepower, in 1909, as against 545 engines with 3,244 horsepower in 1899.

Water wheels show a decrease in number but an increase in total horsepower. The figures also show that the practice of renting electric power is increasing rapidly, 35.4 per cent of the total power being rented electric power in 1909, as against 7.6 per cent in 1899. The proportion for 1909 is larger than for any other state in the Union. The use of electric motors for the purpose of applying the power generated within the establishments is rapidly becoming more common, the horsepower of such motors having increased from 6,138 in 1899 to 27,147 in 1909.

Fuel. Of the fuel consumed in generating this power, a notable fact is the large amount of oil and the small amounts of nearly all other kinds of fuel used. The larger part of this oil is crude oil used as fuel in the generation of steam power, but increasing quantities of refined oil are being used in internal-combustion engines.

Anthracite coal, tons	4,421
Bituminous coal, tons	43,165
Coke, tons	113,665
Wood, cords	76,323
Oil, including gasoline, barrels	8,883,015
Gas, 1,000 feet	302,548

MANUFACTURING IN CALIFORNIA—1850-1909.

The growth of manufacturing in California has made rapid progress, as is shown by the following summary:

	1850	1860
Number of establishments	1,003	8,468
Capital invested	$1,006,197	$22,043,096
Cost of raw material	$1,201,154	$27,051,674
Male hands employed	3,964	49,169
Female hands employed		57
Cost of labor	$3,717,180	$28,432,687
Value of products	$12,862,522	$68,253,228

	1870	1880	1890
Number of establishments	3,984	5,885	7,923
Capital invested	$39,728,202	$61,243,784	$146,797,102
Number of wage-earners	29,148	43,693	72,696
Total wages	$13,136,722	$21,065,905	$41.172,918
Cost of material used	$35,351,193	$72,607,709	$120,243,683
Value of products	$66,594,556	$116,218,973	$213,403,996

	1900	1909
Number of establishments	12,582	7,659
Capital invested	$205,395,025	$537,134,000
Average number of wage-earners	91,047	115,296
Total salaries and wages	$47,425,947	$107,097,000
Cost of materials used	$188,125,602	$325,238,000
Value of products	$302,874,761	$529,761,000

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Summary of Manufacturing Establishments.

	Number or amount	
	1889	1909
Number of establishments	4,997	7,659
Persons engaged in manufacture	*	141,576
Proprietors and firm members	*	8,077
Salaried employees	6,877	18,203
Wage-earners (average number)	77,224	115,296
Primary horsepower	126,953	329,100
Capital	$175,468,000	$537,134,000
Expenses	$225,404,000	$476,154,000
Services—		
Salaries	$7,495,000	$22,955,000
Wages	39,890,000	84,142,000
Totals	$47,385,000	$107,097,000
Materials	$164,894,000	$325,238,000
Miscellaneous	$13,125,000	$43,819,000
Value of products	$257,386,000	$529,761,000
Value added by manufacture (value of products less cost of materials)	$92,492,000	$204,523,000

*Figures not available.

Laundries. Statistics for steam laundries are not included in these tables, or in the totals for manufacturing industries. In 1909 there were 321 such establishments in California, 87 of which were in San Francisco, 41 in Oakland, 31 in Los Angeles, and 10 in Sacramento.

The following statement summarizes the statistics:

Number of establishments	321
Persons engaged in the industry	9,060
Proprietors and firm members	308
Salaried employees	714
Wage earners (average number)	8,038
Primary horsepower	8,961
Capital	$6,295,915
Expenses	8,177,759
Services	5,260,743
Material	1,612,112
Miscellaneous	1,304,904
Amount received for work done	9,541,795

Fourteen Leading Manufactures.

Industry	Number of establishments	Persons engaged*	Salaries	Wages	Capital	Value of product
Automobiles	41	589	$71,000	$368,000	$701,000	$1,470,000
Butter, cheese and condensed milk	161	918	202,000	466,000	2,829,000	12,761,000
Canning and preserving	196	8,714	1,080,000	3,454,000	18,316,000	32,915,000
Cars and steam railway shop construction and repairs	42	9,688	379,000	8,394,000	4,721,000	18,719,000
Cement	8	2,521	195,000	1,650,000	24,014,000	6,504,000
Flour mill and grist mill products	125	1,392	514,000	732,000	13,424,000	25,188,000
Foundry and machine shops	543	10,218	1,832,000	7,312,000	28,693,000	26,731,000
Gas, illuminating and heating	74	2,538	824,000	1,408,000	47,075,000	8,927,000
Leather, tanned, curried and finished	40	1,547	215,000	988,000	8,535,000	9,367,000
Malt liquors	83	1,626	545,000	1,391,000	18,804,000	9,319,000
Wines	181	1,691	429,000	682,000	20,189,000	8,937,000
Lumber and timber products	644	25,079	2,237,000	15,651,000	55,165,000	45,000,000
Petroleum, refining	29	1,146	367,000	801,000	13,881,000	17,878,000
Printing and publishing	1,240	12,215	3,829,000	6,432,000	17,198,000	25,032,000
Slaughtering and meat packing	94	2,135	550,000	1,307,000	11,463,000	34,280,000

*Includes proprietors and firm members, salaried employees, and wage-earners.

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Manufactures of Twenty-one Cities With a Population of Ten Thousand and Over, According to Their Relative Industrial Importance.

	Capital		Average number of wage-earners		Value of products	
	1899	1909	1899	1909	1899	1909
San Francisco†	$69,643,000	$133,824,000	32,555	28,244	$107,023,567	$133,041,069
Los Angeles	10,045,000	59,518,000	5,173	17,327	15,133,696	68,586,274
Oakland	5,173,000	19,113,000	2,476	6,905	5,368,258	22,342,926
Sacramento	6,856,000	10,097,000	3,686	4,514	9,494,633	13,976,911
Stockton	4,454,000	8,250,000	1,185	1,594	5,525,391	11,849,252
Fresno	1,435,000	4,933,000	819	1,938	2,752,201	11,090,195
San Jose	2,980,000	3,815,000	1,221	1,430	3,291,641	5,610,427
San Diego	990,000	5,326,000	255	1,071	669,682	4,740,990
Berkeley	456,000	3,465,000	211	1,084	651,286	4,435,374
Eureka	*	3,306,000	*	946	*	3,011,682
Bakersfield	*	1,791,000	*	746	*	2,818,744
Alameda	749,000	3,002,000	372	915	1,335,326	2,554,417
Vallejo	*	1,559,000	*	203	*	1,895,562
Pasadena	313,000	1,347,000	177	499	330,578	1,724,364
San Bernardino	*	1,242,000	*	729	*	1,659,705
Riverside	*	1,102,000	*	267	*	1,177,962
Santa Barbara	*	895,000	*	265	*	1,169,195
Santa Cruz	*	2,605,000	*	274	*	1,161,269
Long Beach	*	1,326,000	*	277	*	927,180
Pomona	*	630,000	*	224	*	559,661
Redlands	*	1,104,000	*	147	*	518,320

*Figures not available.

†The remarkable increases shown for Alameda and Berkeley, and also for Oakland, are doubtless due largely to the influx of population and business from San Francisco following the earthquake in 1906.

Engines and Power.

Power	Number of engines or motors		Horsepower		Per cent distribution of horsepower	
	1899	1909	1899	1909	1899	1909
Owned:						
Steam	2,158	2,520	105,190	198,526	82.9	58.8
Gas	545	765	3,244	10,115	2.6	3.1
Water wheels	171	115	4,680	7,390	3.7	2.2
Water motors	*	47	*	280	*	0.1
Other	----------	----------	1,609	30	1.3	*
Totals	2,874	3,447	114,723	211,341	90.4	64.2
Rented:						
Electric	*	10,802	9,624	116,537	7.6	35.4
Other	----------	----------	2,606	1,222	2.1	0.4
Totals	2,874	14,249	12,230	329,100	100.0	100.0
Electric motors:						
Run by current generated by establishment	281	1,591	6,138	27,147	38.9	18.9
Run by rented power	*	10,802	9,624	116,537	61.1	81.1
Totals	281	12,393	15,762	143,684	100.0	100.0

*Not reported.

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PART IX.

MISCELLANEOUS.

TRANSPORTATION BY WATER: RIVER TRAFFIC.

California Fisheries: Quantity and Value of Salmon; Salmon Rivers; Salmon Catch by Counties; Monterey Sardines; California Oysters. Game: Deer; Antelope; Mountain Sheep; Bear; Wild Ducks and Geese; Quail; Grouse; Sage-hen; Doves and Pigeons; Pheasants and Wild Turkeys. Public Roads: Mileage of Roads by Counties.

TRANSPORTATION BY WATER.

The largest volume of unused water in California comes from the Sacramento and San Joaquin valleys, and it is here that the greatest development in the future will take place. It is not believed that this increased use of water will seriously injure navigation interests, because a large percentage of the water diverted will return to the streams as waste seepage.

The complete utilization of these two rivers will give California the largest rural population of any state in the Union. Whatever expenditure is necessary to protect navigation interests and enable this to be brought about should be made. Even if it requires the construction of locks and the canalizing of both streams, the improvements will be well worth their cost, and as it is a recognized field for the expenditure of government appropriations, a proper presentation of the situation should prove successful. The above is the opinion of such a high authority as Prof. Elwood Mead.

The navigation of the upper part of the San Joaquin River is now engaging serious attention by those interested in the development of this great valley, and a determined effort is being made to accomplish this great work, by taking active steps to prove its feasibility, and to induce the Federal Government to assist in promoting the undertaking by making the river navigable as far as Herndon, if necessary by a canal for a portion of the distance.

The San Joaquin River fluctuates widely in the course of a year, between a high flood-water level and a lower, or autumn, flow. By gaugings at Friant (formerly called Pollasky), and also at Herndon, the maximum flow of the river has been recorded as high as 59,800 cubic feet per second. The months of the greatest flow are from January to July, inclusive. On the other hand, the minimum flow has fallen as low as 150 feet at Herndon. The months from August to October include the period of low water. In the winter and spring months the average discharge approximates 5,000 to 6,000 feet per second.

From its source in the high Sierra to the point where it joins the Sacramento, at Suisun Bay (about 50 miles by water from San Francisco), the San Joaquin is about 350 miles long; 125 in the mountains and 225 in the valley. It receives the discharge of all the Sierra streams

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south of the Mokelumne and from all the smaller creeks draining from the eastern slope of the Coast Range, between San Francisco Bay and the Tehachapi.

San Francisco Bay, which has an area of about 450 square miles, is by far the most important harbor of the State.

RIVER TRAFFIC.

The Sacramento is navigable as far as Red Bluff, 262 miles above its mouth, while the San Joaquin is navigable, at high water, as far as Hills Ferry, 195 miles from the mouth. The channel up to Stockton is open throughout the year. The capacity of a typical steamboat of these rivers may average not far from thirty carloads of grain or potatoes. Often a steamer will tow one or more barges laden with grain or other commodities. In addition to the steamboat and barge lines, a number of launches are engaged in the freight and passenger service between Sacramento or Stockton and the smaller river landings. One line is operated between Stockton and Sacramento. In May, 1910, there were at least nine or ten different lines of steamboats and launches carrying passengers or freight to and from Sacramento. Another kind of river craft is the scow schooner, or sail vessel common on these rivers and San Francisco Bay.

Although data showing grain traffic on the Sacramento and San Joaquin are but fragmentary, it is known that much wheat and barley are shipped by steamboat and barges down these streams to tidewater. The grain carried on the San Joaquin in 1907 was reported as 137,306 tons, while 109,427 tons were reported in 1906 and 63,457 tons in 1908; live stock traffic in 1906 amounted to 3,366 tons and to 3,244 tons in 1908.*

The wheat grown west of the Rocky Mountains enters into a trade distinct from that of the rest of the United States. The farmer of California, Oregon, or Washington looks to Liverpool and other European ports, not to Chicago and Minneapolis, for his market. His product is carried some 18,000 miles before it reaches the English miller, but this route is cheaper than the 2,000-mile haul across the mountains to milling centers of the Mississippi Valley. Local mills grind considerable quantities, but the surplus for export is regularly carried by sea to Europe.

On the upper Sacramento River the rate from Red Bluff, the head of navigation, to San Francisco, a distance of about 387 miles, was in 1910 equivalent to 9 cents per bushel for wheat, or 7.2 cents for barley. The rate from Stockton to San Francisco was less than 2 cents per bushel for wheat, and slightly more than 1.5 cents for barley. River steamers (and the portage railway around the falls) charged for wheat 9.6 to 10.5 cents per bushel between Lewiston, Idaho, and Portland.

This water service is especially valuable to a considerable area of rich farming land situated on islands in the deltas of the two rivers. Not only is grain an important product, but potatoes, beans, asparagus, and other vegetables are also shipped in large quantities.

TRANSPORTATION BY WATER.

In a special report issued by the Bureau of Census in 1906 on Transportation by Water, it is stated that from 1875 to June 30, 1907, the

*For full details on marketing grain and live stock, see Bulletin 89, Bureau of Statistics, United States Department of Agriculture, by Frank Andrews.

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Federal Government expended $878,749 in improving the Sacramento and Feather rivers, the latter being navigable for gasoline boats and launches from its junction with the Sacramento to Marysville. The canalization of the Sacramento and San Joaquin rivers was suggested as part of a plan to furnish an inland waterway from the upper to the lower part of the State.

Navigable Streams—Length and Depth at Low Water.

Name and points connecting	Distance in miles	Navigable length	Depth at low water, feet	Traffic, tons	
				In 1905	In 1906
Redwood Creek:					
Mouth to Redwood		1.0	3.0	47,700	
San Joaquin River:					
Mouth to Stockton		200	8.0		971,382
Stockton to railroad crossing			3.0		
Stockton to Firebaugh			A few inches.		
Mokelumne River:					50,000
Mouth to Galt		20.0	2.0		to
Mouth to Snodgrass Slough	13.0		6.0		100,000
Sacramento River:					
Mouth to Red Bluff		262.0	2.5		
Mouth to Sacramento	64.0		7.0		375,000
Sacramento to Red Bluff	198.0		2.5		*
Feather River:					
Mouth to Marysville		30.0	1 to 2	5,306	
Petaluma Creek:					
Mouth to Petaluma		16.0	4.0		175,025
Napa River:					
Mouth to Napa		16.0	4.0		182,642

*Steamboat lines only.

An act of congress approved March 1, 1903, created the California Débris Commission, to regulate hydraulic mining in the territory drained by the Sacramento and San Joaquin river systems, and to adopt plans to improve and protect the navigation of those rivers.

On Petaluma Creek and Napa River there is a considerable amount of farm and dairy produce carried on light-draft vessels and a small amount of general merchandise. Vessels operating on the Sacramento, San Joaquin, Mokelumne, Old and Middle rivers handle fruit and vegetables from river landings to San Francisco for local consumption and canneries, and to Sacramento for local consumption, canneries, and transcontinental shipment. Return cargoes consist of general supplies and such manufactured products as are consumed in agricultural districts. Other shipments are grain, dried fruits, live stock, general merchandise, and machinery.

The commerce on the lower San Joaquin River between Stockton and San Francisco is large and important. In 1906 the commerce of this river was reported as 971,382 tons, valued at $14,770,730, exclusive of freight.

The commerce of the upper river is small, the amount of trade reported in 1905 being 10,891 tons. There have been no records kept of the tonnage of the Mokelumne River, the amount of which can only be estimated.

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Tonnage of All Freight and of Grain and Live Stock Carried on San Joaquin and Sacramento Rivers.

(Tons of 2,000 pounds.)

Calendar year	San Joaquin River, all freight, tons	Sacramento River, all freight, tons
1900	270,887	461,314
1901	357,746	452,965
1902	322,000	404,900
1903	366,038	383,724
1904	360,486	353,164
1905	373,186	365,957
1906	440,300	375,000
1907	736,472	367,224
1908	509,233	394,945

Depth of Channel and Distance From Open Sea for California Ports.

Port	Location	Distance from open sea, nautical miles	Depth of channel		Remarks
			Mean low water, feet	Mean high water, feet	
Eureka	Humboldt Bay	5.5	18½	24	
San Francisco	San Francisco Bay	14.8	18½	24	
Oakland	San Francisco Bay	14.8	18½	24	
Monterey	Bay of Monterey	3.0			At wharves, 15 to 36 feet deep.
Port Harford	On the sea		27		
Santa Barbara	On the sea		25		
Los Angeles ports:					
Port Los Angeles	On the sea		34		
Redondo Beach	On the sea				At wharves, 15 to 48 feet.
San Pedro	San Pedro Harbor	1.9	20	25	
San Diego	San Diego Bay	6.1	25	29½	

CALIFORNIA FISHERIES IN 1909.

The principal feature in the California fisheries is a decline in value of products since the year 1904. Although the quantity is greater, fewer men are employed and more motive power in boats.

The quantity of fish, oysters, and whale products caught in 1908 was 645,000 pounds more than in 1899, but the value was $581,000 less. Cod showed a decline, as did flounders, smelt, sole, and crabs. Oysters fell from $867,000 in 1899 to $337,000 in 1908. Salmon showed an increase, the catch amounting to 24 per cent of the total value of the products in 1908, compared with 10 per cent in 1899. Other species that have increased notably are striped bass, barracuda, spiny lobsters, rockfish, catfish, and white sea bass.

The value of the products taken in the shore and boat fisheries in 1908 was $1,627,000, 38 per cent of which was obtained in the Sacramento River, where salmon was the principal species caught, amounting to 7,292,000 pounds. San Francisco Bay was second in rank, according to the value of products taken in the shore and boat fisheries. Herring was the principal species taken in the bay fisheries, while oysters, smelt, sea bass, rockfish, striped bass, and sardines were also taken in considerable quantities.

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The vessel fisheries were credited with products valued at $343,000, whalebone and whale oil accounting for $132,000, but the vessel fisheries amounted to only 17 per cent of the total value of the fishery products of the State.

In 1908 salmon stood first, both in quantity and in value, among the species of fish taken in California waters, the State ranking third in the country, both in quantity and in value of the catch of salmon. Of the total quantity, 79 per cent was taken from the Sacramento River. Striped bass ranked second and cod third in value, the latter being taken largely off the coast of Alaska. All were salted, and the catch was 41 per cent less than in 1904.

SUMMARY OF QUANTITIES AND VALUES.

In the value of products from fisheries, California ranked second among the Pacific coast states, both at the canvass of 1904 and 1908. The river or inland fisheries are confined almost exclusively to the rivers flowing into San Francisco Bay, the largest and most productive of which is the Sacramento.

The following tabular statement gives a summary of the industry for 1908:

Number of persons employed	4,129
Vessels and boats, including outfit	$1,066,000
Apparatus of capture	$502,000
Shore and accessory property and cash	$91,000
Value of products	$1,970,000

The quantity and value of fish taken by the shore and boat fisheries from the different waters of the State in 1908 was as follows:

Fishing ground	Quantity, pounds	Value
Sacramento River	11,643,000	$617,000
San Francisco Bay	3,522,000	431,000
Pacific Ocean	8,552,000	249,000
Humboldt Bay, including Eel and Mad rivers	2,888,000	96,000
Monterey Bay	5,248,000	89,000
Monica Bay	2,574,000	67,000
Santa Barbara channel	1,535,000	62,000
Klamath River	433,000	8,900
San Luis Obispo Bay	464,000	6,200
Totals	36,860,000	$1,627,000

Of the total products taken by the shore and boat fisheries in 1908, the Sacramento River supplied 32 per cent in quantity and 38 per cent in value. Salmon was the principal fish caught in this river, amounting to 7,292,000 pounds; striped bass was next in importance, the total being 1,690,000 pounds. Catfish, shad, carp, black bass, pike, and sturgeon follow in the order named. San Francisco Bay was second in rank, according to the value of products.

In Humboldt Bay and its tributaries there were taken besides salmon, smelts, flounders, herring, rockfish, and crabs. The sardine catch of Monterey amounted to 1,782,000 pounds. More than two thirds of the

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abalone catch of the State is credited to Monterey Bay. Out of a total of 47,477,000 pounds of fish caught in 1908, the principal kinds were:

Varieties of Fish Caught in 1908.

Variety	Pounds	Value
Salmon	9,211,000	$471,000
Chinook	8,846,000	460,000
Blueback	147,000	4,900
Silver	141,000	4,200
Steelhead	76,000	2,800
Sardines	4,638,000	30,000
Sole	3,487,000	65,000
Cod (salted)	3,298,000	94,000
Barracuda	3,205,000	88,000
Flounders	3,193,000	80,000
Rockfish	2,319,000	60,000
Striped bass	1,776,000	135,000
White sea bass	1,337,000	42,000
Catfish	1,069,000	56,000
Crabs	1,702,000	69,000
Oysters	729,000	337,000
Abalone (meat and shells)	1,235,000	22,000

THE SALMON FISHERIES.

In the last report of the United States Commissioner of Fisheries, attention is called to the enormous destruction of young salmon in the Sacramento River through the medium of irrigation canals and the attacks of black bass during the migration of the salmon to salt water. One of the canals referred to is 85 feet wide at the bottom, and as the fry follow the current in their descent of the river, large numbers are carried into the canal by the inflowing water and are left stranded on adjacent lands. Unless the fry are planted below the intake, or some effective method of screening is resorted to, it will be impossible to maintain the present run of salmon in the Sacramento River.

The California Fish Commission, realizing the futility of maintaining the supply of salmon in the Sacramento and tributaries in the face of such adverse conditions, is contemplating the establishment of a hatchery near tidewater for the development of eggs collected at interior stations.

The largest, best-known, and most valuable species is the Chinook, or King salmon, which is found from Ventura River to North Sound, Alaska. There are two runs of spawning fish in the Sacramento, the "spring run," in April, May, and June, spawning mainly in the cold water of the McCloud and Fall rivers. The second, or "fall run," occurs in August, September, and October, and these fish spawn in the riffles in the main river, between Tehama and Redding.

In former years the San Joaquin, and the American and Feather rivers of the Sacramento system, had large runs of salmon, but excessive fishing and the operation of various mining and irrigation projects have practically depleted them.

The Eel and Mad rivers of northern California have only a fall run, while the Klamath River has both a spring and a fall run, and the Smith River, in the northern part of the State, has a spring run alone.

The salmon rivers and fishing grounds in California are: Smith River, Klamath River, Humboldt Bay and tributaries, Mad River, Eel River, Mattole River, a small river in the southern part of Humboldt

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County, Sacramento and San Joaquin rivers, Pitt and McCloud rivers, and Battle Creek.

The principal fishing grounds for salmon are Suisun Bay and the lower part of the San Joaquin and Sacramento rivers. Drift gill nets are used almost exclusively. From Sacramento to Anderson there is considerable commercial fishing with haul seines. The southernmost point on the coast where salmon are taken commercially is Monterey Bay.

Persons Employed. The total number of persons employed in the salmon fisheries in 1909 was 2,675, Contra Costa County leading with 774 persons. These are classified as follows:

	Fishermen	Shoremen	Transporters
White	2,114	276	----------
Japanese	168	5	----------
Chinese	15	----------	----------
Indians	----------	15	----------
Totals	2,297	296	82

The total catch in 1909 amounted to 12,141,937 pounds, valued at $585,995. Contra Costa leads in catch, followed closely by Solano County. Nearly four fifths of the catch were made with gill nets, while Chinook salmon comprise almost all of the catch.

Production and Value by Species.

Species	Pounds	Value
Blueback	21,000	$689
Chinook (fresh)	11,898,199	575,542
Chinook (salted)	69,049	4,552
Silver (fresh)	99,500	2,675
Silver (salted)	46,000	1,900
Dog	4,200	84
Steelhead trout	8,989	553
Totals	12,141,937	$585,995

Production and Value of Salmon Catch by Counties in 1909.

County	Pounds	Value
Del Norte	655,225	$12,852
Humboldt	864,198	34,124
Marin	5,330	310
San Francisco	91,063	4,055
Solano	3,238,788	168,713
Contra Costa	3,949,080	211,166
San Joaquin	61,187	2,585
Yolo	197,520	10,852
Sacramento	599,723	32,690
Sutter	62,119	1,917
Butte	163,022	8,285
Glenn	72,547	3,627
Tehama	314,102	16,905
Shasta	46,475	2,789
Monterey*	1,779,524	73,134
Santa Cruz*	41,984	1,991
Totals	12,141,937	$585,995

*With lines.

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Statistics by Waters.

Persons Employed. Of the 2,675 persons employed in the industry, 1,880 were on Sacramento River; the next largest number was employed on Monterey Bay.

	Fishermen	Shoremen	Transporters	Total
Smith River	47	32		79
Klamath River	37		3	40
Mad River	41			41
Humboldt Bay	7	6		13
Eel River	291	13		304
Sacramento River	1,582	219	79	1,880
Monterey Bay	292	26		318
Totals	2,297	296	82	2,675

Products and Value of the Salmon Catch by Waters.

Waters	Pounds	Value
Smith River	94,000	$3,200
Klamath River	561,225	9,652
Mad River	108,900	4,286
Humboldt Bay	28,000	840
Eel River	727,298	28,998
Sacramento River	8,801,006	463,894
Monterey Bay	1,821,508	75,125
Totals	12,141,937	$585,995

Canned and Cured Salmon.

Mild, Cured, and Smoked Salmon.

River	Mild, cured Chinook		Smoked				Total	
			Chinook		Silver			
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
Eel	64,000	$6,400	50,000	$5,000	3,000	$300	117,000	$11,700
Sacramento	4,095,162	450,019	56,550	8,943	4,660	326	4,156,372	459,288
Monterey Bay	728,800	64,049	4,000	700			732,800	64,749
Totals	4,887,962	$520,468	110,550	$14,643	7,660	$626	5,006,172	$535,737

Sacramento Canned Salmon, 1895-1905.

The quantity of canned salmon from the Sacramento River since 1873 increased rapidly the first ten years, until it touched upwards of 200,000 cans in 1882; since that year the quantity packed rapidly declined until 1905.

Sacramento River Canned Salmon.

Year.	Cases	Year.	Cases
1895	24,000	1901	17,500
1896	13,387	1902	14,043
1897	42,500	1903	10,491
1898	28,000	1904	19,698
1899	33,550	1905	2,780
1900	34,000		

NOTE.—See the Salmon Fisheries of the Pacific Coast, by John N. Cobb. Bureau of Fisheries Document No. 751.

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Hatcheries.

The following is a summary of the distribution from the different hatcheries for the season 1912:

Hatchery	Total shipped and held for breeding
Sisson: Trout, 6 varieties	8,913,670
Salmon	6,142,555
Tahoe: Eastern brook trout	3,111,158
Brookdale: Steelhead trout	803,500
Price Creek: Steelhead trout and salmon	3,783,660
Ukiah: Steelhead trout	433,458
Wawona: Rainbow and black-spotted trout	330,472
Sacramento Experiment Station: Salmon	900,000
Mill Creek Station: Salmon	8,663,230
Black bass—Adult black bass caught up and distributed for breeders	1,750
Summary.	
Trout distributed and held for breeding in State of California during season of 1912	14,172,258
Salmon distributed during season of 1912	18,909,445
Black bass distributed during season of 1912	1,750
Total	33,083,453

Codfish Catch, 1913.

The codfish catch of the San Francisco fishing fleet amounted to 1,639,847 fish.

Sardine Fishery.

A regular sardine fishery exists in Monterey Bay, where large quantities are caught and packed. In 1913 the quantity packed at Monterey amounted to 8,750,000 pounds.

Pack of Tunny Fish.

The pack of tunny fish, which was only commenced a year or two ago, shows a steady increase, the output being:

Year	Cases
1911	42,000
1912	90,000
1913	115,000

California Oysters Produced.

The production of oysters varies considerably. The figures are not available for every year, but the following summary will give some idea of the size and value of the industry.

Year	Bushels	Value
1890	151,325	$592,137
1895	163,636	539,497
1899	420,000	867,000
1904	188,613	628,023
1908	104,000	337,000
1912	68,037	280,344

In California the oyster industry, including the cultivation of oysters and the oyster trade, centers in San Francisco, and the oyster grounds

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are located chiefly in San Francisco Bay, although there are oyster grounds also in Tomales and Humboldt bays. The oyster product of the State is all obtained from private grounds, and the season extends practically through the entire year. Of the 68,000 bushels produced in 1913 all, except 600 bushels of native oysters, valued at $1,800, were Eastern oysters, grown from seed oysters brought from the Atlantic coast and planted on the local beds.

CALIFORNIA GAME.*

The game animals are so valuable in California that the title to them has been retained by the State, and the fees charged for licenses, which expire annually on June 30th, amount to a considerable sum.

Hunting licenses	Fiscal year, 1910-11	Fiscal year, 1911-12
Residents at $1	$138,410	$141,551
Non-residents at $10	1,080	680
Aliens at $25	3,775	3,950
Totals	$143,265	$146,181

Fish and Game Districts.

In California there are so many different conditions of climate and topography that it is almost impossible to create a blanket fish and game law. When deer, for example, are in proper condition to be killed in one section they are out of condition in another. Three years ago the legislature divided the State into six fish and game districts, but by chapter 575, passed at the recent legislature, the number of districts has been increased to seven.

Deer. It is reported in many parts of the State that deer are on the increase, but this is doubtful. There are probably killed in the State each year by hunters 10,000 deer. It has been estimated that every mountain lion will kill at least 52 deer a year; estimating the lions at 250, the number devoured by them would amount to 13,000. Coyotes and other animals would probably bring the total number destroyed to near 30,000. In average years the natural death rate is not great; most of them meet violent deaths, so the above number can be accepted as the number of deer dead from all causes in the State.

Elk and Antelope. Of the thousands of these animals that formerly ranged the State, there are now but a few scattered bands. In the San Joaquin Valley, near Buttonwillow, and in the Sequoia National Park range are all that are left of the thousands of "tule," a dwarf elk that formerly were found throughout the San Joaquin and Sacramento valleys. This species is peculiar to California, and now only number between 400 and 500 head.

Another variety is found in small numbers in Humboldt and Del Norte counties, in bands numbering from six to twelve, but the total number probably does not exceed 200.

The Antelope. The antelope is still found in the extreme eastern part of the State; some are found in Antelope Valley, in the northeastern part of Los Angeles County, while in the western San Joaquin

*See Report of the California Fish and Game Commission, 1910-12.

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Valley the largest band of the State is found. In Modoc, Lassen, and Siskiyou counties there are several small bands. All told, there are probably about 600 antelope left in the State.

Mountain Sheep. These still flourish in considerable numbers in the southeastern part of the State. Formerly this magnificent game animal ranged over the entire Sierra Nevada region and across to the lower Coast Range, as far north as San Luis Obispo County, but they are now restricted to the most inaccessible portions.

Bear. The grizzly bear is practically extinct. The common brown or black bear is fairly abundant in some parts. It is for the most part a harmless species, feeding on roots, berries, grubs and insects, and rarely kills sheep or hogs. The pelt of a well-colored bear in prime condition is worth from $20 to $40.

Fur-bearing Animals. Few people realize the importance of fur-bearing animals in this State, yet each year furs worth nearly $200,000 are shipped to the various fur centers.

Wild Ducks and Geese. These are the most abundant game birds in the State, although neither of them are nearly as numerous as they were in former years. Ducks breed throughout the entire State, and the number killed in California in 1911 is estimated at approximately one million.

Quail. Quail are slowly decreasing throughout most of the State, on account of the great number of hunters. In parts of the State there is urgent need of a close season for a number of years if quail are to be kept from extermination. Mountain quail have become very scarce throughout the southern end of the State, and in the coast region below San Francisco. In other parts of the State they are about holding their own.

Grouse. Ruffed grouse are fairly abundant in the extreme northwestern corner of the State. The blue grouse is becoming scarcer, and where the settlers have engaged in sheep raising, they are almost extinct.

The Sage Hen. This bird is found only in the eastern part of the State, in the true sagebrush country. The sage hen is practically never found below an elevation of 3,000 to 4,000 feet, nor out of the true sagebrush country. It is the largest California game bird.

Doves and Pigeons. The most difficult bird to arrange a proper season for is the common mourning dove, January being the only month in which they do not nest. On this account many sportsmen advocate the removal of the dove from the list of game birds. There is urgent need for the protection of the wild (band-tail) pigeon. This is the slowest breeding game bird in the United States. One egg is the complete set, and probably only one egg is laid the entire year.

Pheasants and Wild Turkeys and Hungarian Partridges. Of the introduced game birds, ring-neck pheasants have done well, especially in Humboldt County; they have also increased in parts of Santa Clara and San Joaquin valleys. Wild turkeys have been liberated in the lower Sierra Nevada region; other plants have been made in San Diego, San Bernardino, Monterey, San Benito, Alameda, Sonoma, and Humboldt counties. Hungarian partridges have been given a good trial, but, as yet, without success.

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PUBLIC ROADS.

The total mileage of public roads in the United States in 1909 was 2,199,645 miles, and the total of improved roads 190,476 miles, made up as follows: Stone 59,237 miles, gravel 102,870 miles, other material 28,372 miles. Indiana leads all other states in the mileage of improved roads, with 24,955 miles; Ohio is second, New York third, California seventh, and Massachusetts eighth. A decrease in improved roads is reported from California, Michigan, Minnesota, and Wisconsin.

The practice of improving the earth roads by the use of oil in California has been, to a large extent, discontinued, and this has had the effect of cutting down the mileage of that class of roads considerably, and so reducing the total mileage of improved roads. The information from some of the counties is not altogether satisfactory, but the figures are as accurate and complete as it was possible to obtain at the time. California had, at the close of 1909, 48,069 miles of public roads, which exceeds the total mileage reported for 1904 by 1,416 miles.

Of the total mileage of public roads in the State, 579 miles are reported as having been surfaced with stone, 6,054 miles with gravel, 1,289 miles with sand clay, and 653 miles with oiled earth, making a total mileage of improved roads of 8,587, or 17.87 per cent. This is about 1 per cent less than was reported in 1904, and this decrease is due principally to the fact that the oiling of earth roads has been abandoned to a large extent, for while there were 2,541 miles of earth roads reported to have been oiled in 1904, there were only 653 miles of oiled roads reported in 1909.

The gain in improved roads is as follows: 160 miles of macadam, 1,289 miles of sand clay, and 210 miles of gravel. No sand clay roads were reported in 1904. There are ten counties in the State which report no improved roads, twenty-one counties have less than 10 per cent improved, and nine counties have from 52 to 80 per cent improved, as follows:

County	Improved
Napa	80.89 per cent
Los Angeles	72.33 per cent
Santa Clara	68.83 per cent
San Benito	68.73 per cent
San Mateo	65.14 per cent
Sonoma	59.92 per cent
Yolo	57.72 per cent
Alameda	55.55 per cent
Colusa	52.24 per cent

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TABLE XL.

Miles of Public Roads in 1909.

Counties	Total mileage of all public roads	Mileage of improved roads					Approximate per centage of roads improved
		Stone	Gravel	Sand clay	Oiled	Total	
Alameda	765	25	400			425	55.55
Alpine	100						
Amador	500	15	20			35	7.00
Butte	1,200	5	400			405	33.75
Calaveras	606	5	40			45	7.42
Colusa	578		302			302	52.24
Contra Costa	500		100	10	40	150	30.00
Del Norte	125		30			[1]42.5	34.00
El Dorado	900			5		5	.55
Fresno	1,500			20	150	170	11.33
Glenn	500		138			138	27.60
Humboldt	1,130	10	300	105		415	36.72
Imperial	726						
Inyo	500						
Kern	1,100	2			100	102	9.27
Kings	500				92	92	18.40
Lake	488		160			160	32.78
Lassen	720		25	25		50	6.94
Los Angeles	1,500	[2]85	1,000			1,085	72.33
Madera	410				30	30	7.31
Marin	309						
Mariposa	355						
Mendocino	1,200						
Merced	450	1	136			137	30.44
Modoc	766		10			10	1.30
Mono	380						
Monterey	600	50	50			100	16.66
Napa	560	3	450			453	80.89
Nevada	600	30				30	5.00
Orange	500		25	5		30	6.00
Placer	775	7				7	.90
Plumas	385		10			10	2.59
Riverside	800	4	48	2		54	6.75
Sacramento	1,500	86	20			106	7.06
San Benito	451		160	150		310	68.73
San Bernardino	[3]840						
San Diego	5,200			450		450	8.65
San Francisco	[4]						
San Joaquin	990	12	25			37	3.73
San Luis Obispo	1,100		162		1	163	14.82
San Mateo	350	131	65	15	17	228	65.14
Santa Barbara	750	16	45		5	66	8.80
Santa Clara	1,200	20	600	200	6	826	68.83
Santa Cruz	420	12.25	25	6	7	50.25	11.96
Shasta	1,575		66	170		236	14.98
Sierra	525						
Siskiyou	2,625	.5	20	4		24.5	.93
Solano	630	9	25	1		35	5.55
Sonoma	1,260	35	600	120		755	59.92
Stanislaus	470		55			55	11.70
Sutter	350	8	50			58	16.57
Tehama	650	5	60	1		66	10.15
Trinity	200		5			5	2.50
Tulare	2,285				60	60	2.62
Tuolumne	290		52		15	67	23.10
Ventura	700				100	100	14.28

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TABLE XL—Continued.

Miles of Public Roads in 1909.

Counties	Total mileage of all public roads	Mileage of improved roads					Approximate percentage of roads improved
		Stone	Gravel	Sand clay	Oiled	Total	
Yolo *	680	2.5	360	----------	30	392.5	57.72
Yuba	1,000	----------	15	----------	----------	15	1.50
Totals	48,069	579.25	6,054	1,289	653	[1]8,587.75	17.87
Increase in Five Years.							
Year 1904	46,653	418.5	5,843.5	----------	2,541	8,803	18.87
Year 1909	48,069	579.25	6,054	1,289	653	[1]8,587.75	17.87
Increase	1,416	160.75	210.5	289	----------	----------	----------

[1]Includes 12.5 miles of wood puncheon road. [2]Bituminous—macadam. [3]This is exclusive of roads in the Mojave Desert, which comprises about 85 per cent of the county. [4]Included in the city of San Francisco. No county roads in this county.

TABLE XLI.

Cost Data of Roads in 1909.

County	Average cost per mile			
	Sand clay	Gravel	Macadam	Bituminous
Alameda	----------	*$1 35	*$1 35	----------
Del Norte	----------	2,500 00	----------	----------
Glenn	----------	†89	----------	----------
Humboldt	----------	*60	*95	*
Los Angeles	----------	----------	----------	$11,000 00
Merced	----------	----------	9,000 00	----------
Nevada	----------	1,400 00	----------	----------
Riverside	----------	*14	----------	*76
Sacramento	----------	----------	----------	7,500 00
San Diego	$625 00	----------	----------	*1 62
San Mateo	----------	----------	*59	*1 73
Santa Barbara	----------	----------	----------	7,800 00
Santa Clara	200 00	1,000 00	6,000 00	8,000 00
Santa Cruz	----------	----------	5,200 00	----------
Shasta	----------	1,500 00	----------	----------
Siskiyou	----------	1,000 00	----------	----------
Sonoma	----------	*1 25	*1 87	----------
Tehama	----------	850 00	1,300 00	----------
Yolo	----------	*10	*63	----------
Average	$412 00	$1,375 00	$5,375 00	$8,575 00

*Average cost per square yard; Gravel, 69 cents; macadam, $1.08; bituminous, $1.37.
†Cost per cubic yard.

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PART X.

FINANCE AND TAXATION.

Tariff Acts 1789–1913; Foreign Trade and California Ports 1880–1913; Total Assessed Value by Counties 1910-1913. Assessed Value of All Property, 1850–1913.

RESOURCES OF STATE AND NATIONAL BANKS IN 1913.

STEAM AND ELECTRIC RAILROADS.

INSURANCE.

Fire, Marine, Life, Industrial and Fraternal Societies.

TARIFF ACTS.

Tariff Acts Passed by Congress.

(From 1789 to 1913.)

1789.	July 4th.	1861.	August 5th.
1790.	August 10th.	1862.	July 14th.
1791.	March 3d.	1863.	March 3d.
1792.	May 2d.	1864.	June 30th.
1794.	June 7th.	1865.	March 3d.
1795.	January 29th.	1866.	July 28th.
1797.	March 3d.	1867.	March 2d.
1800.	May 13th.	1870.	July 14th.
1804.	March 27th.	1872.	June 6th.
1816.	April 27th.	1875.	February 8th.
1818.	April 20th.	1883.	March 3d.
1824.	May 22d.	1890.	June 10th.
1828.	May 19th.	1890.	October 1st (McKinley bill).
1832.	July 14th.	1894.	August 27th (Wilson bill).
1833.	March 2d.	1897.	July 24th (Dingley bill).
1842.	August 30th.	1905.	March 3d (Philippine tariff).
1846.	July 30th.	1909.	August 5th (Paine-Aldrich bill).
1857.	March 3d.	1909.	August 5th (Philippine tariff).
1861.	March 2d.	1913.	October 3d (Wilson bill).

In addition to the above 38 acts, there are 224 other miscellaneous acts, proclamations, and joint resolutions, making a total of 262 on the subject of the tariff. The act passed last year, which came into effect on October 4, 1913, makes a considerable reduction on agricultural products and places many articles on the free list.

FOREIGN TRADE AND CALIFORNIA IMPORTS AND EXPORTS.

Custom districts and ports.	*Subports of entry.*
San Francisco	Oakland, Port Harford, Monterey.
Los Angeles	Santa Barbara, Redondo Beach and San Pedro.
San Diego	
Humboldt	Eureka.

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TABLE XLII.

TARIFF CHANGES, 1909 AND 1913.

Summary of Principal Agricultural Products.

Article	Act of August 5, 1909	Act of October 3, 1913
Agricultural implements and machines	15 per cent	Free
Apples, peaches, pears, quinces, cherries, plums	25¢ bushel	10¢ bushel
Apricots and peach kernels	4¢ pound	3¢ pound
Bananas	Free	No change
Beans and peas, prepared	2½¢ pound	1¢ pound
Beans	45¢ bushel	25¢ bushel
Beeswax	Free	No change
Beets	25 per cent	5 per cent
Beets (sugar)	10 per cent	5 per cent
Berries, in natural state	1¢ quart	½¢ quart
Brandy and other spirits	$2.60 proof gal.	No change
Casks, barrels, packing boxes	30 per cent	15 per cent
Champagne	$9.60 per dozen	No change
Cider	5¢ per gallon	2¢ per gallon
Cotton, raw	Free	No change
Cranberries	25 per cent	10 per cent
Currants, Greek	2¢ pound	1½¢ pound
Dates	1¢ pound	No change
Eggs (fresh)	Free	No change
Evaporated fruits	2¢ pound	1¢ pound
Figs	2½¢ pound	2¢ pound
Fruit plants, tropical	Free	No change
Grapes (in packages)	25¢ cubic foot	No change
Honey	20¢ gallon	10¢ gallon
Lemons	1½c pound	*
Oranges, limes pomeloes	1¢ pound	*
Nursery stock		
Nuts—	25 per cent	15 per cent
Almonds, unshelled	6¢ pound	4¢ pound
Walnuts, shelled	4¢ pound	3¢ pound
Walnuts, unshelled	5¢ pound	4¢ pound
Filberts, shelled	3¢ pound	2¢ pound
Filberts, unshelled	5¢ pound	4¢ pound
Peanuts, shelled	3¢ pound	2¢ pound
Peanuts, unshelled	1¢ pound	¾¢ pound
All other nuts	½¢ pound	⅝¢ pound
All other nuts	1¢ pound	No change
Olives, in bottles, less than 5 gallons	25¢ gallon	15¢ gallon
Olives, in packages over 5 gallons	15¢ gallon	
Olive oil in bottles, less than 5 gallons (edible)	50¢ gallon	30¢ gallon
Other olive oil	40¢ gallon	20¢ gallon
Olive oil fit only for mechanical or manufacturing purposes	Free	No change
Petroleum and mineral oils	Free	No change
Onions	40¢ bushel	20¢ bushel
Peas, green or dried	25¢ bushel	10¢ bushel
Pickles and sauces	40 per cent	25 per cent
Pineapples in barrels or packages	8¢ cubic feet	6¢ cubic feet
Pineapples preserved in own juice	25 per cent	20 per cent
Potatoes (from countries imposing duty on American potatoes)	25¢ bushel	10 per cent
Potatoes	25¢ bushel 60 lbs.	Free
Poultry, live	3¢	1¢
Poultry, dead	5¢	2¢
Prunes	2¢ pound	1¢ pound
Raisins and dried grapes	2½¢ pound	2¢ pound
Rice cleaned	2¢ pound	1¢ pound
Rice uncleaned	1½c pound	¾¢ pound
Sugar	Various rates	†
Sugar beets. See beets.		
Vegetables prepared or pickled	40 per cent	25 per cent
Vegetables, natural, not otherwise specified	25 per cent	15 per cent
Vinegar	7½¢ per proof gal.	4¢ per proof gal.
Wine and brandy	Various rates	No change

In packages, capacity 1½ cubic feet, or less, 18¢ per package; exceeding 1½ cubic feet and not exceeding 2½ cubic feet, 35¢ per package; exceeding 2½ cubic feet and not exceeding 5 cubic feet, 70¢ per package; exceeding that size or in bulk, ½ of 1¢ per pound.

†No change till March 1, 1914, when a reduction of about 12½ per cent took place. After May 1, 1916, sugar will be admitted free.

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TABLE XLII—Continued.

Farm Animals and Dairy Products.

Commodity	Before October 4, 1913	October 4, 1913, and after
Animals:		
Asses	Breeding purposes and teams of immigrants, free; all other, 20 per cent ad valorem.	Breeding purposes and teams of immigrants, free; all other, 10 per cent ad valorem.
Cattle	Breeding purposes and teams of immigrants, free; all other: less than 1 year, $2 per head; all other, worth not over $14, $3.75 per head; worth over $14, 27½ per cent ad valorem.	Free.
Goats	20 per cent ad valorem	Free.
Horses	Breeding purposes and teams of immigrants, free; all others: worth $150 or less per head, $30; worth over $150, 25 per cent ad valorem.	Breeding purposes and teams of immigrants, free; all other, 10 per cent ad valorem.
Mules	Same as horses	Same as horses.
Sheep	Breeding purposes, free; all other: less than 1 year old, 75 cents per head; 1 year old and over, $1.50.	Free.
Swine	Breeding purposes, free; all other, $1.50 per head.	Free.
Dairy products:		
Butter	6 cents per pound	2½ cents per pound.
Cheese	6 cents per pound	20 per cent ad valorem.
Cream	5 cents per gallon	Free.
Milk	Fresh, 2 cents per gallon; condensed and evaporated, 2 cents per pound.	Free.
Hides and skins, raw	Free	Free.
Meat:		
Beef and veal	Fresh beef, 1½ cents per pound; other beef, 25 per cent ad valorem; veal, 1½ cents per pound.	Free.
Mutton and lamb	1½ cents per pound	Free.
Pork	Fresh, 1½ cents per pound; bacon and hams, 4 cents per pound; other pork, 25 per cent ad valorem.	
Sausage	Bologna, or frankfurter, free; other sausage, 25 per cent ad valorem.	Free.
Wool	Class 1, clothing, etc., wools: unwashed, 11 cents per pound; washed, 22 cents; scoured, 33 cents. Class 2, combing, etc., wools: unwashed, 12 cents per pound; washed, 12 cents; scoured, 36 cents. Class 3: value not over 12 cents per pound, 12 cents; over 12 cents, 21 cents.	Free on and after Dec. 1, 1913.

Cereals, Hay, Hops, and Straw.

Barley, 30¢ per bushel of 48 pounds	15¢ per bushel
Broom corn, $3 per ton	Free
Buckwheat, 15¢ per bushel of 48 pounds	Free
Corn, 15¢ per bushel of 56 pounds	Free
Oats, 15¢ per bushel of 32 pounds	6¢ per bushel
Rye, 10¢ per bushel	Free
Wheat, 25¢ per bushel	Free
Wheat flour, 25 per cent ad valorem	Free
Hay, $4 per ton	$2 per ton
Hops, 16¢ per pound	No change
Straw, $1.50 per ton	50¢ per ton

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TABLE XLIII.

Imports and Exports of Gold and Silver (Coin and Bullion) of California Ports, 1870-1913, for fiscal year ending June 30.

San Francisco.

Year	Gold		Silver		Total imports	Total exports
	Imports	Exports	Imports	Exports		
1870	$743,272	$9,489,281	$5,108,282	$12,495,262	$5,851,554	$21,984,543
1871	839,480	5,218,056	3,567,132	5,396,246	4,406,612	10,614,302
1872	4,024,103	12,650,072	2,084,128	5,241,937	6,108,231	17,892,009
1873	2,622,397	11,419,424	4,120,416	5,841,463	6,742,813	17,260,887
1874	1,107,646	4,644,587	4,405,213	7,333,110	5,512,859	11,977,697
1875	1,536,377	1,042,354	3,483,863	6,222,099	5,020,240	7,264,453
1876	1,497,543	773,354	4,152,810	7,716,713	5,650,353	8,490,067
1877	1,165,462	1,804,703	5,533,952	16,323,843	6,699,414	18,128,546
1878	2,461,568	979,085	3,465,135	16,952,302	5,926,703	17,571,387
1879	1,041,789	571,120	4,893,346	7,735,811	5,935,135	8,306,931
1880	1,540,965	488,753	4,502,601	7,511,220	6,043,566	7,999,973
1881	2,278,330	677,489	4,446,256	6,202,923	6,724,586	6,880,412
1882	6,389,944	600,438	4,252,817	4,641,837	10,642,761	5,242,275
1883	5,181,343	559,346	4,069,905	7,189,264	9,251,248	7,748,610
1884	4,985,213	708,375	3,718,082	10,840,447	8,703,295	11,548,822
1885	1,916,568	1,145,747	4,002,454	17,165,290	5,919,022	18,311,037
1886	6,437,801	980,821	2,848,395	16,565,653	9,286,196	17,546,464
1887	2,402,193	1,288,960	3,602,675	16,313,852	6,094,868	17,602,812
1888	4,943,871	766,330	2,795,346	14,038,956	7,739,217	14,805,286
1889	3,862,226	799,563	3,084,454	18,100,182	6,946,680	18,899,745
1890	4,751,582	1,520,262	3,269,267	13,258,391	8,020,849	14,778,653
1891	6,358,074	1,646,118	3,634,455	5,609,371	9,992,529	7,255,489
1892	9,736,872	803,791	3,086,706	9,458,354	12,823,578	10,262,145
1893	5,508,193	1,110,013	2,661,819	13,870,229	8,170,012	14,980,242
1894	2,693,636	1,202,443	2,126,973	13,142,267	4,820,609	14,344,710
1895	1,858,878	708,293	1,971,768	13,344,012	3,830,646	14,052,305
1896	1,206,234	854,554	2,642,372	11,763,449	3,848,606	12,618,003
1897	9,647,628	1,083,945	2,611,694	9,459,133	12,259,322	10,543,078
1898	25,799,405	1,217,490	2,472,347	9,514,531	28,271,752	10,732,021
1899	32,124,013	1,774,717	2,551,666	4,889,974	34,675,679	6,664,691
1900	10,574,256	2,025,189	3,096,775	7,502,120	13,671,031	9,527,309
1901	24,911,109	364,758	3,738,814	7,927,900	28,649,923	8,292,658
1902	14,338,906	781,826	4,169,221	8,368,761	18,508,127	9,150,587
1903	9,263,674	3,114,023	2,679,547	6,392,414	11,943,221	9,506,437
1904	40,366,770	652,277	3,492,909	4,600,950	43,859,679	5,253,227
1905	15,590,871	5,905,700	3,003,796	6,622,002	18,594,667	12,527,702
1906	4,233,579	5,366,189	2,513,861	9,417,951	6,747,440	14,784,140
1907	14,504,917	22,391	3,414,584	2,410,717	17,919,501	2,433,108
1908	3,759,329	34,539	3,164,428	5,182,657	6,923,757	5,217,196
1909	3,588,424	3,033,975	2,652,954	6,886,849	6,241,378	9,920,824
1910	3,362,104	27,008,324	2,582,352	7,314,954	5,944,456	34,323,278
1911	8,111,108	20,690	1,579,109	9,262,759	9,690,217	9,283,449
1912	4,532,321	7,034,962	1,453,089	9,905,094	5,985,410	16,940,056
1913	3,914,975	113,108	1,808,461	11,753,927	5,723,436	11,867,035

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Imports of gold and silver into San Diego and Los Angeles from 1900 to 1911:

Year	San Diego		Los Angeles	
	Gold	Silver	Gold	Silver
1900	$62,319	$948	$50	
1901	67,392			
1902	46,690	948		
1903	14,233			$172
1904	16,774	418		25
1905	32,565			
1906	9,695			*172
1907	4,915	996		
1908	10,553		25	
1909	29,066		50	
1910	26,638			
1911	11,481			
1912†				
1913†				

*$1,000 in silver exported. †Included under "All other Pacific districts."

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TABLE

Imports and Exports of Foreign and Domestic

(For fiscal year

Year.	San Francisco		Los Angeles	
	Imports	Exports	Imports	Exports
1880	$35,221,751	$32,358,929		
1881	37,943,695	35,096,856		
1882	41,001,636	53,476,356		
1883	45,702,530	44,959,420	$80,671	$4,800
1884	35,857,698	37,050,598	216,113	125,212
1885	35,040,350	38,115,624	187,348	252,673
1886	37,142,117	30,228,424	206,957	167,686
1887	40,707,708	32,711,043	341,082	152,630
1888	46,692,905	27,684,891	482,851	34,442
1889	48,425,760	37,673,376	451,628	724
1890	48,751,223	36,876,091	169,955	220
1891	50,943,299	40,168,771	315,226	
1892	47,135,684	40,737,044	398,517	42,535
1893	45,291,099	31,144,180	502,044	
1894	38,146,626	24,903,009	445,966	102,943
1895	36,269,637	24,873,148	657,671	6,696
1896	41,400,317	31,582,910	679,944	30,487
1897	34,375,945	39,647,606	504,028	7,499
1898	42,822,945	41,223,759	476,042	110,440
1899	35,746,577	30,214,904	769,472	4,090
1900	47,869,628	40,368,288	1,011,090	
1901	35,161,753	34,596,792	885,473	30
1902	35,102,981	38,183,755	676,615	80
1903	36,454,283	33,502,616	1,019,481	682
1904	37,542,978	32,547,181	1,292,560	503
1905	46,675,545	49,924,026	810,000	291
1906	44,433,271	39,915,269	827,059	12,105
1907	54,094,570	33,026,664	1,559,322	45,000
1908	48,251,476	28,000,069	1,538,199	187,247
1909	49,998,111	31,669,370	1,306,341	193,221
1910	49,350,643	31,180,760	1,942,647	135,911
1911	53,885,021	40,624,903	2,655,558	86,415
1912	59,235,471	49,249,734	3,225,618	161,735
1913	62,501,681	66,021,385	2,747,601	253,562

NOTE.—The customs district of San Francisco was established September 28, 1850; that of San Diego in 1879; Los Angeles (Wilmington) and Humboldt in 1883.

*For the imports and exports, 1851-1879, see Report for 1912, pages 266-267.

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XLIV.

Merchandise From California Ports, 1880-1913.*

ending June 30.)

San Diego		Humboldt		Total	
Imports	Exports	Imports	Exports	Imports	Exports
$107,537	$64,883	----------	----------	$35,329,288	$32,423,812
160,203	372,034	----------	----------	38,103,898	35,468,890
678,892	531,078	----------	----------	41,680,528	54,007,434
284,588	198,548	----------	$171,123	46,067,789	45,333,891
135,889	127,966	$6,373	224,464	36,216,073	37,528,240
71,106	66,504	1,731	201,865	35,300,535	38,636,666
119,173	72,307	5,710	163,295	37,473,957	30,631,712
185,595	165,949	5,744	113,576	41,240,129	33,143,198
827,808	375,891	2,830	142,207	48,006,394	28,237,431
514,014	375,924	4,586	122,757	49,395,988	38,172,781
437,665	264,644	1,549	108,051	49,360,392	37,249,006
538,066	394,824	4,005	154,503	51,800,596	40,718,098
380,770	441,200	3,925	151,553	47,918,906	41,372,332
407,236	79,443	1,571	138,008	46,201,950	31,361,631
383,399	379,586	----------	106,750	38,975,991	25,492,288
346,155	45,225	2,110	106,594	37,275,573	25,031,663
324,465	196,419	1,460	102,440	42,406,186	31,912,256
222,063	199,540	1,183	162,027	35,103,219	40,016,672
198,477	491,139	1,181	146,725	43,498,645	41,972,063
397,115	1,425,861	2,006	195,678	36,915,170	31,840,533
559,585	2,739,174	1,528	253,616	49,441,831	43,361,078
511,661	963,014	----------	163,682	36,558,887	35,723,518
440,239	255,833	1,908	319,550	36,221,743	30,759,218
417,557	168,993	3,423	497,810	37,894,744	34,170,101
459,786	317,830	7,107	550,436	39,302,431	33,415,950
275,631	320,533	1,821	140,441	47,762,997	50,385,291
464,634	299,579	4,283	737,940	45,729,247	40,964,893
653,789	809,809	1,173	677,092	56,308,854	34,558,565
722,359	641,223	10,736	759,726	50,522,770	29,788,265
535,257	397,626	4,862	894,228	51,843,571	33,154,445
741,916	928,994	6,317	1,031,182	52,041,523	33,276,847
875,184	1,022,481	6,779	1,058,615	57,422,542	42,792,414
1,076,990	1,092,159	7,622	1,231,441	63,545,701	51,735,069
1,022,904	1,137,116	8,330	1,028,046	66,280,516	68,440,109

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TABLE XLV.

Grand Total Value of All Assessed Property in California.*
(From the reports of the State Controller's Department.)

Counties	1910	1911	1912	1913
Alameda	$199,424,502	$206,308,270	$243,043,586	$256,363,895
Alpine	509,180	535,819	539,905	546,189
Amador	5,877,174	6,187,293	6,081,630	6,154,014
Butte	22,832,012	23,906,913	25,469,997	25,135,048
Calaveras	6,540,979	6,657,802	6,607,594	7,920,748
Colusa	13,373,570	13,626,337	14,685,281	15,485,375
Contra Costa	35,399,378	39,658,989	42,631,665	47,731,341
Del Norte	4,365,256	4,813,887	4,880,765	5,079,461
El Dorado	6,142,693	6,528,442	6,785,170	6,954,117
Fresno	65,263,906	70,616,735	78,998,660	92,261,816
Glenn	14,088,244	15,888,617	16,980,132	17,261,076
Humboldt	29,149,177	29,716,743	34,958,314	34,164,968
Imperial	12,148,180	16,034,094	17,802,655	21,554,632
Inyo	4,907,480	5,763,912	6,268,862	9,505,223
Kern	52,350,546	65,843,625	73,253,382	80,529,757
Kings	13,160,692	14,283,622	15,356,486	16,021,104
Lake	3,646,189	3,662,007	4,824,106	4,850,106
Lassen	7,272,217	6,990,498	7,431,405	8,338,937
Los Angeles	530,837,659	607,182,762	726,110,668	804,111,796
Madera	10,622,886	11,125,904	14,388,045	14,848,773
Marin	19,709,273	20,285,223	21,003,985	22,020,030
Mariposa	2,491,892	3,480,405	3,567,315	3,608.137
Mendocino	15,699,059	15,617,974	16,334,097	18,147,700
Merced	20,961,031	22,251,637	25,001,574	25,366,168
Modoc	6,135,543	6,488,434	6,691,970	7,709,392
Mono	1,350,815	1,349,890	1,437,518	1,946,359
Monterey	28,369,676	31,108,836	31,769,895	82,702,889
Napa	16,688,744	17,210,355	17,419,458	18,053.729
Nevada	8,063,262	8,173,371	8,100,054	8,060,030
Orange	30,597,532	35,593,063	44,526,688	48.185,593
Placer	13,275,928	12,959,724	13,379,216	12,978,772
Plumas	6,777,118	7,346,851	8,960,958	8,429,018
Riverside	26,925,831	29,079,084	31,532,687	31,984,516
Sacramento	61.646,032	78,296,179	86,589,795	91.000,053
San Benito	7,879,250	8,365,538	8,184,027	8,453.146
San Bernardino	49,899,287	52,428,789	58,285,281	60.176.743
San Diego	44,197,729	53,735,870	59,140,997	73.685,084
San Francisco	515,421,025	545,398,908	605,141,664	624,182,130
San Joaquin	46,589,011	56,067,807	64,715,657	65.557,627
San Luis Obispo	18,285,413	19,995,045	20,207,375	20,662,282
San Mateo	27,573,681	30,346,078	30,739,041	31.692.918
Santa Barbara	31,141,395	31,911,978	32,722,992	33.380,447
Santa Clara	73,144,102	76,283,890	77,987,556	80.072,624
Santa Cruz	17,821,451	19,809,398	19,915,174	20,903,743
Shasta	16,072,141	16,006,099	15,642,300	15,181,888
Sierra	2,429,947	2,381,360	2,394,194	2,428,636
Siskiyou	17,615,841	18,516,606	21,583,145	22,137,012
Solano	22,822,851	23,718,764	24,941,957	25.406,702
Sonoma	36,814,714	39,131,641	40,110,583	40,781,686
Stanislaus	24,078,757	25,793,669	29,878,470	31,158,943
Sutter	8,163,960	8,583,856	9,184,568	12,963,082
Tehama	13,897,891	14,457,968	14,474,792	15.644,158
Trinity	2,881,208	3,021,775	3,052.887	3.088,170
Tulare	37,545,540	44,672,734	45,397,614	46.842,975
Tuolumne	8,485,327	8,805,098	9,885,945	9,946,773
Ventura	25,516,650	26,468,131	30,763,999	30,834,087
Yolo	20,338,956	20,926,947	22,085,786	24.051,914
Yuba	7,721,519	8,520,444	9,493,367	9,898,108
Totals	$2,372,944,301	$2,602,344,933	$2,919,342,889	$3,114,136,640

*For the figures for 1880 and 1890, see Report for 1912, pages 268-269.

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TABLE XLVI.

Grand Total Value of All Assessed Property in California, 1850-1913.

(From the reports of the State Controller's Department.)

Year	Total assessed value of property in California	Year	Total assessed value of property in California
1850	$57,670,689	1882	$608,555,960
1851	49,231,052	1883	765,729,430
1852	64,579,375	1884	821,078,767
1853	95,335,646	1885	859,512,384
1854	111,191,630	1886	817,445,729
1855	103,887,193	1887	956,740,805
1856	115,007,440	1888	1,107,952,700
1857	126,059,461	1889	1,111,550,979
1858	125,955,877	1890	1,101,137,290
1859	131,060,279	1891	1,242,300,434
1860	148,193,540	1892	1,275,678,822
1861	147,811,617	1893	1,216,380,398
1862	160,369,071	1894	1,204,347,291
1863	174,104,955	1895	1,132,512,903
1864	179,164,730	1896	1,264,973,043
1865	183,534,312	1897	1,089,373,316
1866	200,368,826	1898	1,132,230,221
1867	212,205,339	1899	1,193,961,761
1868	237,483,175	1900	1,217,648,863
1869	260,563,879	1901	1,241,359,555
1870	277,538,134	1902	1,290,238,964
1871	267,868,126	1903	1,597,944,240
1872	637,232,823	1904	1,545,698,785
1873	428,747,043	1905	1,624,023,172
1874	611,495,197	1906	1,594,231,577
1875	618,083,315	1907	1,879,950,692
1876	595,073,177	1908	1,990,256,945
1877	586,953,022	1909	2,439,566,433
1878	584,578,036	1910	2,372,944,301
1879	549,142,610	1911	2,602,344,933
1880	666,399,985	1912	2,919,342,889
1881	659,835,762	1913	3,114,136,640

Summary.

	1912	1913
Total value of property as returned by auditor	$2,771,971,280 00	$2,963,022,898 00
Value of railroads as assessed by State Board of Equalization	147,371,609 00	151,113,742 00
Funded debt of counties	35,863,600 00	47,250,200 00
Floating debt with estimated interest of counties	254,881 00	96,340 52
Total county indebtedness	36,118,481 00	47,346,540 52

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CALIFORNIA BANKS.

State banks, June 4, 1913	548
National banks, August 9, 1913	255
Total number of banks	803

Summary of Resources.

Total resources and liabilities of all reporting banks in California:

	STATE BANKS.	
146 commercial banks.	Commercial banks	$203,715,452 95
180 departmental banks.	Savings banks	491,719,242 69
136 savings banks.	Trust companies	10,436,646 16
80 branch banks.		
6 trust companies.	Total	$705,871,341 80
548	Total national banks	489,865,804 52
	Grand total	$1,195,737,146 32
	Postal savings fund	1,080,478 03

The Banking Resources of California Counties.

The following figures prove the enormous financial resources of the State, and the remarkable totals of some counties with a comparative small population. The statements of the State and National banks, not being taken on the same day, the combined totals are, of necessity, not exact, but for all practical purposes they are close enough to prove the enormous wealth of California.

Compared with last year, there is an increase of 29 State banks and 24 National banks, making a total increase of 53 banks. The total resources of all banks show an increase of $27,524,641, compared with 1912, and the savings banks an increase of $616,236.

The total resources of the State banks on June 4, 1913, amounted to $705,871,341.80, and the National banks, on August 9, 1913, $489,865,804.52, or a total of $1,195,737,146.32.

In 1912 California was fifth in point of banking strength among the states, being exceeded only by such old states as New York, Pennsylvania, Massachusetts, and Illinois, in the order named. This holds good whether reference is made to capital and surplus, deposits, or total resources, according to the annual report of the Comptroller of the Currency for 1912. In savings bank deposits alone California outranks Illinois, and is exceeded only by New York, Massachusetts, and Pennsylvania. The average amount to each depositor in the different states varies considerably, Nevada taking the lead, but California being a close second, the figures being as follows:

Nevada	$793 17	Southern states	$230 85
California	681 16	Middle Western states	360 33
New England states	411 88	Western states	212 72
Eastern states	493 67	Pacific states	625 18

The average amount to each depositor for the whole United States in 1912 was $444.72.

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Among the counties, the two holding the largest amounts in 1912 are San Francisco, with $504,600,000, and Los Angeles, with $247,100,000, but other counties also make a striking display of strength, no less than ten having total resources amounting to upwards of ten millions.

Ten Counties With Resources of Over $10,000,000 in 1912.

Counties	Amount	Counties	Amount
Alameda	$81,600,000	Sonoma	$17,400,000
Sacramento	37,600,000	Fresno	16,900,000
San Diego	24,300,000	San Bernardino	14,500,000
Santa Clara	23,300,000	Orange	10,900,000
San Joaquin	19,700,000	Santa Barbara	10,700,000

A complete list of all the National and State banks in California, classified by counties, and giving the date of incorporation of each bank, with the totals of the commercial, savings, and trust departments, and total resources of each and every bank is given in the report for 1912, pages 276-305.

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TABLE XLVII.

Total Resources of California Banks by Counties in 1912.

(Compiled from the reports of the State Banking Department and the Comptroller of the Currency.)

Counties	State banks					National banks		Grand total National and State banks, 1912
	Number of banks	Commercial department	Savings department	Trust department	Total June 14, 1912	Number of banks	Total September 4, 1912	
Alameda	33	$10,115,535 05	$49,732,335 33	$568,604 52	$60,416,474 90	12	$21,187,351 00	$81,603,825 90
Alpine								
Amador	1	998,325 36			998,325 36			998,325 36
Butte	7	2,349,929 43	846,897 11		3,196,826 54	3	3,009,129 00	6,205,955 54
Calaveras	1	331,854 86	372,017 23		703,872 09			703,872 09
Colusa	4	3,281,866 40	191,570 30		3,473,436 70	1	293,814 00	3,767,250 70
Contra Costa	12	2,498,667 40	2,758,791 96		5,257,459 36	5	2,116,734 00	7,374,193 36
Del Norte	2	315,144 58	34,769 22		349,913 80			349,913 80
El Dorado	1	551,126 06			551,126 06			551,126 06
Fresno	9	1,972,700 26	2,694,853 26		4,667,553 52	17	12,252,587 00	16,920,140 52
Glenn	4	1,878,527 40	169,481 68		2,048,009 08	1	417,699 00	2,465,708 08
Humboldt	10	3,533,265 33	3,070,493 33		6,603,758 66	2	1,947,174 00	8,550,932 66
Imperial	3	363,530 55	37,056 82		400,587 37	7	1,950,691 00	2,351,278 37
Inyo	2	863,083 13	35,275 73		898,358 86			898,358 86
Kern	7	4,414,158 20	702,356 88		5,116,515 08	4	2,857,824 00	7,974,339 08
Kings	5	1,129,018 31	495,766 35		1,624,784 66	5	3,134,319 00	4,759,103 66
Lake	2	512,197 08			512,197 08			512,197 08
Lassen	1	466,023 16			466,023 16			466,023 16
Los Angeles	68	29,406,670 91	104,954,977 05	4,129,801 07	138,491,449 03	56	108,618,807 00	247,110,256 03
Madera	1		129,417 91		129,417 91	2	837,391 00	966,808 91
Marin	6	783,307 96	1,658,016 33		2,441,324 29	1	503,152 00	2,944,476 29
Mariposa								
Mendocino	8	1,754,870 29	382,649 53		2,137,519 82	1	534,664 00	2,672,183 82
Merced	5	1,394,346 40	2,758,023 21		4,152,369 61	2	1,017,009 00	5,169,378 61
Modoc	3	525,263 19			525,263 19	1	474,629 00	999,892 19
Mono								
Monterey	8	2,621,673 84	2,210,333 25		4,832,007 09	2	1,362,886 00	6,194,893 09
Napa	5	1,807,600 70	1,404,827 17		3,212,427 87	3	1,437,783 00	4,650,210 87
Nevada	2	914,842 62	1,419,698 97		2,334,541 59			2,334,541 59
Orange	12	770,588 15	2,178,120 92	201,570 13	3,150,279 20	12	7,840,683 00	10,990,962 20
Placer	7	1,176,085 27	507,568 92		1,683,654 19	1	137,084 00	1,820,738 19
Plumas	2	169,652 06	231,366 20		401,018 26			401,018 26
Riverside	12	1,152,448 75	2,480,583 88		3,633,032 63	7	6,123,629 00	9,756,661 63
Sacramento	12	1,820,783 09	14,266,515 67	206,228 97	16,293,527 73	4	21,393,466 00	37,686,993 73

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San Benito	3	1,239,394 55	1,315,738 18		2,555,132 73	1	497,053 00	3,052,185 73
San Bernardino	11	1,442,872 83	3,702,497 14		5,145,369 97	12	9,398,483 00	14,543,852 97
San Diego	15	4,729,397 16	8,284,585 79		13,013,982 95	8	11,358,440 00	24,372,422 95
San Francisco	32	63,037,459 89	193,892,502 30	6,907,339 20	263,837,301 39	9	240,847,983 00	504,685,284 39
San Joaquin	12	7,799,430 66	10,202,355 32		18,001,785 98	2	1,797,765 00	19,799,550 98
San Luis Obispo	5	2,983,898 37	996,927 44		3,980,825 81	2	749,138 00	4,729,963 81
San Mateo	7	700,279 35	1,846,502 01		2,546,781 36	2	1,106,527 00	3,653,308 36
Santa Barbara	10	3,964,923 35	4,051,846 29		8,016,769 64	3	2,684,002 00	10,700,771 64
Santa Clara	18	7,451,356 26	10,875,259 62		18,326,615 88	4	5,055,840 00	23,382,455 88
Santa Cruz	7	998,925 99	5,129,699 45		6,128,625 44	3	2,544,193 00	8,672,818 44
Shasta	3	125,799 15	722,716 28		848,515 43	2	1,215,879 00	2,064,394 43
Sierra	1	70,194 13			70,194 13			70,194 13
Siskiyou	7	1,726,288 87	197,402 56		1,923,690 93	2	816,968 00	2,740,658 93
Solano	8	2,998,247 79	1,215,654 95		4,213,902 74	4	1,637,745 00	5,851,647 74
Sonoma	17	5,360,119 82	5,556,854 19		10,916,974 01	6	6,560,222 00	17,477,196 01
Stanislaus	12	3,176,401 05	2,429,082 68		5,605,483 73	4	2,259,887 00	7,865,370 73
Sutter	2	280,955 93	201,056 55		482,012 48			482,012 48
Tehama	2	2,300,052 58			2,300,052 58	1	359,710 00	2,659,762 58
Trinity	1	151,716 32	42,415 69		194,132 01			194,132 01
Tulare	7	756,163 38	1,249,814 05		2,005,977 43	11	6,823,704 00	8,829,681 43
Tuolumne	1		517,608 26		517,608 26	1	976,417 00	1,494,025 26
Ventura	9	1,999,142 69	1,589,191 54		3,588,334 23	4	4,219,399 00	7,807,733 23
Yolo	6	3,151,837 92	2,918,359 61		6,070,197 53	2	856,135 00	6,926,332 53
Yuba	4	3,087,990 56	1,846,108 99		4,934,099 55			4,934,099 55
Totals	*519	$199,228,081 33	$455,756,885 08	$12,013,543 89	$666,998,510 30	231	$501,213,995 00	$1,168,212,505 30

Postal Savings Banks, $464,241.66.

*455 banks and 64 branches.

NOTE.—Three counties, Alpine, Mariposa, and Mono, had no banks.

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Bank Clearings of Eight Cities, 1905-1913.

SAN FRANCISCO.		SACRAMENTO.	
Year	Clearings	Year	Clearings
1905	$1,834,549,788 51	1905	
1906	1,998,400,779 46	1906	
1907	2,133,883,625 80	1907	
1908	1,757,141,850 08	1908	$44,628,760 60
1909	1,979,872,570 06	1909	54,562,493 31
1910	2,323,772,870 99	1910	69,447,281 94
1911	2,427,075,543 46	1911	78,376,700 21
1912	2,677,561,952 27	1912	92,747,060 69
1913	2,624,428,824 74	1913	108,268,688 89
LOS ANGELES.		FRESNO.	
1905	$478,985,298 40	1905	
1906	578,635,516 82	1906	
1907	581,803,982 00	1907*	
1908	505,588,756 02	1908	
1909	673,165,728 81	1909	$29,324,258 30
1910	811,387,487 47	1910	37,930,473 07
1911	922,914,526 09	1911	39,782,776 05
1912	1,168,941,700 02	1912	51,400,594 73
1913	1,211,168,989 00	1913	57,384,801 12
OAKLAND.		STOCKTON.	
1905		1905	
1906*		1906	
1907	$140,416,038 98	1907*	
1908	76,847,792 99	1908	$24,415,671 88
1909	96,527,088 09	1909	28,301,936 22
1910	157,380,388 13	1910	32,277,582 57
1911	172,484,561 60	1911	40,350,889 35
1912	192,570,346 29	1912	44,891,763 06
1913	188,730,096 95	1913	45,925,831 09
SAN DIEGO.		SAN JOSE.	
1905*		1905*	
1906	$36,218,236 32	1906	$10,969,524 94
1907	49,194,870 02	1907	15,504,767 53
1908	37,771,349 22	1908	23,246,315 12
1909	52,094,521 82	1909	25,320,894 50
1910	67,173,976 93	1910	27,828,978 64
1911	86,724,333 47	1911	29,877,754 37
1912	131,894,087 37	1912	35,882,473 55
1913	134,155,368 77	1913	35,730,898 59

*Clearing house only organized in 1912, so the figures for the twelve months are not available.

PUBLIC UTILITIES.

The total assets of utilities during the year ending June 30, 1912, exclusive of steam railroads, amounted to $1,674,431,051.44. This amount is composed of the following items:

30 street railroad companies	$454,892,598 43
238 water companies	237,021,577 40
113 gas and electric companies	652,815,527 73
81 telegraph and telephone companies	313,885,259 15
37 wharfinger and warehouse companies	15,816,093 73
499	$1,674,431,051 44

The above figures show the enormous amount of capital invested in the public utilities in the State of California.

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RAILROADS IN CALIFORNIA.

June 30, 1912.

(Compiled from the Reports of the State Railroad Commission.)

Name of company	General office	Average track mileage operated	Total railway capital	Amount per mile of line
Amador Central	Martell	13.66	$700,000 00	$58,333 00
Arcata and Mad River	Arcata	28.00	187,740 00	8,834 82
Atchison, Topeka and Santa Fe	Los Angeles	2,096.44	630,306,575 00	59,152 00
Bay Point and Clayton	San Francisco	9.52	150,000 00	17,008 00
Boca and Loyalton	San Francisco	63.53	1,633,000 00	31,253 00
Bucksport and Elk River	Eureka	9.64	500,000 00	57,870 00
Butte County	Chico	33.24	41,800 00	1,327 00
California Western Railroad and Navigation Company	San Francisco	52.15	1,530,000 00	34,607 00
Camino, Placerville and Lake Tahoe	Camino	8.94	200,000 00	24,844 00
Cement, Tolenas and Tidewater Railway	San Francisco	5.5	256,000 00	85,333 00
Colusa and Lake	Colusa	26.00	150,500 00	6,841 00
Diamond and Caldor	Oakland	34.69	472,000 00	14,010 00
Eureka and Freshwater	San Francisco	.95	25,000 00	26,316 00
Hanford and Summit Lake	San Francisco	43.62	50,000 00	1,179 00
Holton Interurban	Redlands	29.87	300,000 00	28,653 00
Iron Mountain	San Francisco	14.00	100,000 00	9,090 00
Klamath Lake	Tacoma, Wash.	17.97	1,169,590 00	48,190 00
Lake Tahoe Railroad and Transportation Company	Tahoe	17.33	1,000,000 00	60,314 00
Los Angeles and San Diego Beach Railroad	San Diego	20.31	711,000 00	40,283 00
McCloud River	San Francisco	94.89	2,400,000 00	30,288 00
Mill Valley and Mt. Tamalpais Scenic Railway	Mill Valley	11.62	330,500 00	31,120 00
Nevada-California-Oregon	Reno, Nev.	245.36	3,615,000 00	15,152 00
Nevada County Narrow Gauge Railway	Grass Valley	27.85	421,200 00	20,547 00
Northwestern Pacific	San Francisco	523.63	57,693,000 00	125,896 00
Ocean Shore	San Francisco	65.88	4,796,300 00	85,770 00
Pacific Coast Railroad Co.	Seattle, Wash.	121.22	2,740,400 00	26,593 00
Pajaro Valley Consolidated	San Francisco	50.33	1,100,000 00	26,474 00
Porterville Northeastern	San Francisco	18.94	600,000 00	37,832 00
Quincy Western	Quincy	6.00	63,831,000 00	10,638 00
Richmond Belt	San Francisco	8.27	500,000 00	83,333 00
Sacramento Valley and Eastern	Winthrop	15.00	500,000 00	33,333 00
San Diego and Arizona	San Diego	28.74	2,000,000 00	42,753 00
San Diego and Cuyamaca	San Diego	30.04	1,500,000 00	59,241 00
San Diego and Southeastern	San Diego	93.57	1,650,000 00	22,437 00
San Diego Southern	San Diego	63.53	1,212,000 00	25,135 00
San Pedro Los Angeles and Salt Lake	Los Angeles	507.13	†80,155,000 00	79,187 00
Santa Maria Valley	Santa Maria	22.91	500,000 00	28,137 00
Sierra Railway Company of California	Jamestown	84.24	5,346,000 00	70,676 00
Sierra and Mohawk	Reno, Nev.	38.55	250,000 00	6,853 00
Southern Pacific Company	San Francisco	6,240.33	413,263,140 00	8,046,400 00
South San Francisco Belt	San Francisco	3.00	50,000 00	16,667 00
Stockton Terminal and Eastern	Stockton	17.04	413,900 00	23,787 00
Sugar Pine	Sonora	24.73	1,180,000 00	79,514 00
Sunset	Los Angeles	93.70	1,606,000 00	32,210 00
Tonopah and Tidewater	Oakland	153.13	4,285,344 00	24,762 00
Ventura County Railway*	Oxnard	27.15	245,000 00	11,578 00
Western Pacific	San Francisco	493.50	150,000,000 00	160,078 00
Yosemite Valley	Merced	89.70	10,000,000 00	126,310 00
Yreka Railroad	San Francisco	7.90	100,000 00	13,333 00

*Name changed from Bakersfield and Ventura Railway.

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RAILROADS LEASED OR OPERATED BY OTHER COMPANIES.

Name of company	Miles	Capital	Amount per mile of line
Alameda and San Joaquin	42.10	$500,000 00	$13,850 41
Arizona and California	190.31	7,647,035 00	40,182 00
California, Arizona and Santa Fe	458.08	73,466,695 00	88,083 00
California Eastern	29.94	1,404,935 00	31,075 00
California North Eastern	24.84	5,400,000 00	62,718 00
California North Western	51.74	2,551,000 00	63,679 00
Central California	16.24	3,000,000 00	184,730 00
Central Pacific	1,139.04	285,539,397 00	132,785 00
Chico and Northern	30.57	1,000,000 00	32,712 00
Coast Line Railroad Company	11.91	1,700,000 00	142,737 00
Eel River	30.00	942,000 00	37,680 00
Eureka and Klamath River	39.29	500,000 00	12,726 00
Fort Bragg and Southeastern	23.85	100,000 00	4,193 00
Fresno County	6.24	85,000 00	13,622 00
Fullerton and Richfield	5.1	5,000 00	980 00
Inter-California	44.41	3,350,000 00	34,871 00
Kings River	10.70	11,000 00	1,028 00
Layton and Western	17.57	449,000 00	25,554 00
Los Angeles Terminal	60.35	4,500,000 00	87,720 00
Modesto and Empire Traction Company	5.00	50,000 00	10,000 00
Nevada-California	360.69	8,500,000 00	17,945 00
National City and Otay River	32.76	1,151,000 00	42,788 00
North Pacific Coast	113.90	2,998,000 00	33,127 00
North Shore	103.25	9,498,000 00	104,950 00
Oakdale Western	6.30	87,500 00	13,889 00
Oregon Eastern	67.45	5,000,000 00	33,926 00
Oregon and Eureka	16.68	125,000 00	11,574 00
Pacific Lumber and Wood Company	10.00	100,000 00	10,000 00
Perris and Lakeview	8.02	16,000 00	1,995 00
Placerville and Lake Tahoe	8.3	1,050,000 00	126,505 00
Randsburg Railroad Company	29.66	840,000 00	29,330 00
Sacramento Southern	7.91	2,500,000 00	289,687 00
San Diego, Pacific Beach and La Jolla	15.03	275,000 00	20,310 00
San Francisco and North Western	61.78	762,000 00	14,211 00
San Francisco and North Pacific	165.52	9,880,000 00	59,690 00
San Francisco and San Joaquin Valley	463.57	8,465,200 00	22,581 00
San Francisco and Napa	8.76	55,000 00	5,131 00
San Juan Pacific	7.5	1,820,000 00	242,667 00
San Joaquin and Eastern	55.3	2,000,000 00	36,166 00
Sierra Valley Railroad	38.55	1,344,959 00	36,868 00
Southern California	478.07	25,108,740 00	52,521 00
Southern Pacific Railroad	3,109.31	310,805,500 00	99,959 00
Southern Pacific Coast Company	96.72	11,500,000 00	118,900 00

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ELECTRIC RAILWAYS OF CALIFORNIA.

Name of company	Average track mileage operated	Total railway capital	Amount per mile of line
Bakersfield and Kern Electric Railway	10.44	$360,000 00	$34,482 00
California Street Cable	11.00	2,000,000 00	181,818 00
Central California Traction Company	78.00	5,500,000 00	70,056 00
Fresno Traction	18.24	5,750,000 00	315,241 00
Humboldt Transit	13.00	708,000 00	54,076 00
Los Angeles Railway Corporation	354.84	40,000,000 00	112,726 00
Monterey and Del Monte Heights	3.00	50,300 00	16,767 00
Monterey and Pacific Grove	5.05	588,000 00	106,909 00
Nevada County Traction Company	5.07	188,000 00	32,982 00
Northern Electric	133.68	34,505,500 00	258,120 00
Oakland and Antioch	20.23	4,858,625 00	240,169 00
Ontario and San Antonio Heights	15.00	1,300,000 00	84,120 00
Pacific Electric Railway Company	912.00	152,640,000 00	167,352 00
Pacific Gas and Electric Railway Company (street railway department)	38.32	[2]	[2]
Peninsular Railway Company	[1]91.33	12,500,000 00	136,866 00
Petaluma and Santa Rosa	37.33	1,972,000 00	52,826 00
Point Loma	8.45	196,000 00	23,931 00
Presidio and Ferries	9.00	1,085,000 00	119,902 00
Sacramento Terminal Company	[5]6.91	400,000 00	57,887 00
San Diego	60.51	3,025,000 00	79,479 00
San Francisco, Napa and Calistoga	35.00	3,210,000 00	90,384 00
San Francisco-Oakland Terminal	245.16	48,307,000 00	334,188 00
San Jose	41.89	8,000,000 00	190,976 00
San Jose and Santa Clara County	[4]		
Santa Barbara Consolidated	5.96	185,500 00	33,007 00
South San Francisco Railroad and Power Company	4.02	13,500 00	3,358 00
Stockton Electric	12.82	800,000 00	62,402 00
Tidewater Southern	[5]		
Union Traction	14.67	1,389,000 00	94,683 00
United Railroads of San Francisco	250.00	85,839,000 00	388,963 00
Visalia Electric Railroad	28.19	24,000 00	851 00
Watsonville Railway and Navigation Co.	5.3	208,000 00	40,600 00

[1]Also 26.19 miles leased to Southern Pacific Company.
[2]Capital not segregated to railroad.
[3]Road operated by the Northern Electric Company.
[4]Sold to San Jose Railroads, March 15, 1912.
[5]In course of construction.

SUMMARY.

Total miles of single track	1,648
Total miles of second track	589
Miles of sidings and turnouts	186
Total	2,423

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ELECTRIC RAILWAYS LEASED, ABSORBED, OR OPERATED BY OTHER COMPANIES.

Name of company	Miles	Capital	Amount per mile of line
California Railway	8.03	$475,000 00	$77,361 00
East Shore and Suburban	18.79	1,464,000 00	85,363 00
Fresno City	8.58	628,000 00	73,193 00
Los Angeles Interurban	357.64	20,000,000 00	55,922 00
Los Angeles Pacific	190.00	35,201,000 00	185,083 00
Los Angeles and Redondo	80.40	9,447,000 00	105,671 00
Oakland Traction Company	174.93	28,980,000 00	285,591 00
Sacramento Terminal	6.91	400,000 00	57,887 00
Sacramento Short Line	7.30	*	
Redlands Central	3.10	355,000 00	108,064 00
Riverside and Arlington	12.73	281,200 00	22,089 00
San Bernardino Valley Traction Co.	40.46	2,035,500 00	50,308 00
San Bernardino Interurban	3.64	48,000 00	13,186 00
San Francisco, Oakland and San Jose Consolidated	26.68	14,250,000 00	1,199,494 00
San Francisco, Vallejo and Napa	35.44	2,761,266 00	81,597 00
San Francisco Railway and Power Co.	4.02	13,500 00	3,358 00

*Operated and included in San Francisco-Oakland Terminal Railways.

INSURANCE.

The total number of insurance companies and associations, except fraternal insurance societies, authorized to transact business in the State of California during the year ending December 31, 1912, was 306, classified as follows:

California Companies.

Stock, Fire and Marine	5	
County Mutual Fire	21	
Legal Reserve Life	7	
Assessment Life, Health and Accident	2	
Miscellaneous Stock	13	
Interinsurance Associations	5	
Total (California companies)		53

Companies of Other States.

Stock, Fire and Marine	99	
Mutual Fire and Marine	7	
Legal Reserve Life	38	
Assessment Life, Health and Accident	5	
Stock miscellaneous	52	
Interinsurance Associations	5	
Total (other states)		206

Companies of Foreign Countries.

Stock, Fire and Marine	42	
Stock miscellaneous	5	
Total (foreign)		47
Grand total		306

The above shows an increase of 48 in the total number of insurance companies authorized to transact business in California during 1912, as compared with the preceding year.

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COMPARATIVE SUMMARY FOR THE YEARS 1911-1912.

California Companies.

	1911	1912
Capital stock (paid up)	$9,051,000 00	$11,228,665 00
Admitted assets	44,749,673 06	51,427,084 76
Liabilities (except capital)	29,340,061 19	33,144,613 91
Net surplus (except capital)	6,358,611 87	7,053,805 85

Companies of Other States.

	1911	1912
Capital stock (paid up)	$102,032,354 00	$116,435,355 16
Admitted assets	4,261,844,110 25	4,534,295,308 20
Liabilities (except capital)	3,798,840,190 71	4,127,897,782 40
Net surplus (except capital)	360,063,809 09	289,962,165 64

Companies of Foreign Countries.

	1911	1912
Capital deposit	$12,561,900 00	$13,608,000 00
Admitted assets	111,585,916 91	123,901,364 54
Liabilities (except capital)	69,618,970 98	78,069,214 84
Net surplus (except capital)	29,405,045 93	32,224,149 70

Fire Insurance.

The following summary shows the premiums received and the losses paid in California during the past twelve years:

Year	Premiums received	Losses paid
1901	$7,522,401 88	$2,344,581 05
1902	7,339,984 39	2,655,301 58
1903	8,288,354 90	4,342,785 60
1904	10,104,033 49	3,830,252 77
1905	10,353,808 04	3,883,540 20
1906	13,368,350 87	*146,306,376 92
1907	16,242,105 95	7,008,035 97
1908	14,442,623 40	5,345,988 35
1909	15,094,210 60	5,795,279 57
1910	15,900,524 11	6,013,426 48
1911	16,154,908 01	4,604,219 19
1912	16,258,040 76	5,569,008 97

*Losses owing to the great San Francisco fire.

Marine Insurance.

There were 34 companies transacting marine insurance business during 1912. There was an increase in the amount written in 1912 over that written in 1911 of $60,383,909; an increased amount of premiums was received of $346,583, and a decrease of $595,987 in the losses paid.

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MARINE INSURANCE.

Year	Premiums received	Losses paid
1905	$1,581,196 83	$1,463,939 42
1906	1,628,982 01	1,394,987 73
1907	1,885,535 22	1,276,704 91
1908	1,864,861 07	994,487 39
1909	1,952,269 99	1,368,892 35
1910	2,180,135 74	1,689,065 81
1911	2,321,318 35	1,375,225 59
1912	2,667,902 00	779,238 00

Life Insurance.

The number of companies transacting business in the State in 1912 was 45. Of these 7 were organized under the laws of California and 38 under the laws of other states. The amount written in 1912 was $85,162,790, as compared with $62,960,670 in 1911, or an increase of $22,202,120. The number of policies taken out was 27,298 in 1911 and 36,016 in 1912, being an increase of 8,718 policies.

Year	Premiums received	Losses and endorsements paid
1901	$6,242,443 41	$2,975,847 01
1902	7,480,488 89	2,887,479 63
1903	8,866,405 31	2,881,932 78
1904	10,166,656 76	3,121,817 19
1905	10,550,503 86	3,400,490 37
1906	10,643,952 00	4,081,162 73
1907	11,017,207 20	4,995,417 25
1908	11,658,903 26	4,343,935 04
1909	12,557,869 31	4,404,398 96
1910	13,501,003 98	4,771,862 70
1911	14,811,167 84	5,719,644 03
1912	16,718,297 79	6,449,765 86

Industrial Life Insurance.

The amount written in 1912 was $15,500,964, as compared with $13,816,386 in 1911, or an increase of $1,684,578.

Year	Premiums received	Losses paid
1905	$725,705 69	$175,854 95
1906	810,355 30	213,436 29
1907	845,188 77	212,701 78
1908	920,464 73	225,829 95
1909	1,058,790 00	275,574 95
1910	1,285,416 24	305,356 64
1911	1,466,604 96	354,320 28
1912	1,724,786 67	420,678 02

Fraternal Societies.

A total of 53 fraternal societies is now licensed to transact business in this State.

	Number	Amount
Certificates in force December 31, 1912	163,053	$231,930,723 00
Received from members in California, 1912		3,035,240 00
Losses or claims paid in California, 1912		2,086,902 00

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APPENDIX A.

CALIFORNIA STATE BOARD OF AGRICULTURE

State Board of Agriculture and Agricultural Experiment Stations in the United States.

STALLION REGISTRATION BOARDS.

State Boards of Agriculture and Experiment Stations.

There are 43 official bodies or organizations in the United States charged with the promotion of agriculture. Of these 20 are "State Boards of Agriculture"; 19 are governed by a "Commissioner of Agriculture"; 3, Georgia, Minnesota and California, have a "State Agricultural Society," and Pennsylvania a "Secretary of Agriculture." Of the above, California is the only one with a dual title, that of the "State Agricultural Society" and "State Board of Agriculture." The former title is misleading, as there are no longer any members, membership being discontinued in 1905. There are also 60 Agricultural Experiment Stations, conducted, in most cases, under the authority of the state universities.

The first Agricultural Experiment Stations, now sixty in number, were formed some forty years ago, one of the pioneers being that of the State University at Berkeley in 1873. They were subsequently reorganized under the Hatch Act of 1887, which largely extended the number of these most valuable institutions.

Stallion Registration Boards.

The first law regulating the registration of stallions was passed by the state of Wisconsin in 1906, since which time seventeen other states have taken this important step to improve the breed of their horses.

California State Agricultural Society.

(Incorporated May 13, 1854. State Board of Agriculture appointed March 12, 1863.)

The California State Agricultural Society was one of the first to be organized, and ranks as fifth in the United States.

The first State Fair was held in the Music Hall at San Francisco from the 4th to about the 12th of October, 1854, and the stock show was held on the Pioneer race course. A fair has been held annually ever since—in 1855 at Sacramento, 1856 at San Jose, 1857 at Stockton, 1858 at Marysville, and since then at Sacramento.

The amount distributed in premiums and purses for the promotion of agriculture, the encouragement of live stock breeding and of other California industries during this period is upward of $1,580,000.

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REPORTS OF THE CALIFORNIA STATE AGRICULTURAL SOCIETY.

(State Board of Agriculture.)

Year	Year
1854 not printed	1886
1855 not printed	1887
1856 pamphlet form	1888
1857	1889
1858	1890
*1859	*1891
1860	1892
1861	1893
1862 not printed	1894
1863	1895
1864–65	1896
1866–67 pamphlet, 16 pages	1897 not printed
1868–69	1898 not printed
1870–71	1899
1872	*1900
1873	*1901
1874	1902 not printed
1875	1903 not printed
1876	1904
*1877	*1905
1878	*1906
*1879	*1907
*1880	*1908
*1881	1909
1882	*1910
1883	*1911
1884	1912
1885	*1913

Down to 1904, inclusive, the volumes were entitled "Transactions of the California State Agricultural Society"; from 1905 to 1910, "Reports of the California State Agricultural Society"; in 1911 a new statistical series was commenced as the "Reports of the California State Board of Agriculture."

*A few copies of these volumes can still be obtained on application to the Secretary, the remainder being out of print.

NOTE.—From 1864-65 to 1870-71, inclusive, the reports were biennial.

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CALIFORNIA STATE FAIRS, 1854-1914.

Year	Place	Date	Premiums	Races	Total	Presidents
1854	San Fran.	Oct. 4	$4,660	$	$4,660	F. W. Macondry, San Fran.
1855	Sacramento	Sept. 25-Oct. 1	6,550		6,550	C. T. Hutchison, Sac'to.
1856	San Jose	Oct. 7-10	6,746		6,746	E. L. Beard, Alameda.
1857	Stockton	Sept. 29-Oct. 2	7,991		7,991	C. M. Weber,* Stockton.
1858	Marysville	Aug. 23-28	7,435		7,435	John C. Fall, Marysville.
1859	Sacramento	Sept. 13-23	8,139		8,139	C. T. Hutchinson, Sac'to.
1860	Sacramento	Sept. 19-26	8,827		8,827	T. G. Phelps, San Mateo.
1861	Sacramento	Sept. 16-21	7,231		7,231	Jerome C. Davis, Yolo Co.
1862	Sacramento	Aug. 31-Sept. 4			5,000	A. Haraszthy, Sonoma.
1863	Sacramento	Sept. 25-Oct. 3	4,894		4,894	Judge Isaac Davis, Yolo Co.
1864	Sacramento	Oct. 17-22	6,105		6,105	C. F. Reed, Grafton, Yolo Co.
1865	Sacramento	Sept. 18-23	10,658		10,658	C. F. Reed, Grafton, Yolo Co.
1866	Sacramento	Sept. 10-15	9,742		9,742	C. F. Reed, Grafton, Yolo Co.
1867	Sacramento	Sept. 9-14	9,954		9,954	C. F. Reed, Grafton, Yolo Co.
1868	Sacramento	Sept. 15-25			10,000	C. F. Reed, Grafton, Yolo Co.
1869	Sacramento	Sept. 6-11				C. F. Reed, Grafton, Yolo Co.
1870	Sacramento	Sept. 12-17			30,000	C. F. Reed, Grafton, Yolo Co.
1871	Sacramento	Sept. 18-23			40,000	C. F. Reed, Grafton, Yolo Co.
1872	Sacramento	Sept. 19-28			20,000	C. F. Reed, Grafton, Yolo Co.
1873	Sacramento	Sept. 15-20	8,925	14,200	23,125	R. S. Carey, Yolo.
1874	Sacramento	Sept. 21-28	9,619	15,950	25,569	R. S. Carey, Yolo.
1875	Sacramento	Sept. 15-26	9,214	13,330	22,544	R. S. Carey, Yolo.
1876	Sacramento	Sept. 18-23				R. S. Carey, Yolo.
1877	Sacramento	Sept. 17-22				Marion Biggs, Butte.
1878	Sacramento	Sept. 16-21	10,965	13,775	24,740	Marcus D. Boruck, San Fran.
1879	Sacramento	Sept. 8-13		12,260	12,260	Hugh M. Larue, Sacramento.
1880	Sacramento	Sept. 20-25	6,502	14,885	21,387	Hugh M. Larue, Sacramento.
1881	Sacramento	Sept. 19-24	6,603	12,525	19,128	J. M. McShafter, San Fran.
1882	Sacramento	Sept. 11-16	8,651	14,262	22,913	Hugh M. Larue, Sacramento.
1883	Sacramento	Sept. 10-15	8,915	14,005	22,920	P. A. Fingan, Alameda.
1884	Sacramento	Sept. 8-20	11,467	23,165	34,632	P. A. Fingan, Alameda.
1885	Sacramento	Sept. 10-19	13,612	25,145	38,757	Jesse D. Carr, Salinas.
1886	Sacramento	Sept. 9-18	13,370	22,900	36,270	Jesse D. Carr, Salinas.
1887	Sacramento	Sept. 15-24	14,538	23,470	38,008	L. U. Shippee, Stockton.
1888	Sacramento	Sept. 6-15	14,256	25,560	38,816	L. U. Shippee, Stockton.
1889	Sacramento	Sept. 12-21	17,056	30,860	47,916	Christopher Green, Sac'to.
1890	Sacramento	Sept. 11-20	15,761	27,016	42,777	Christopher Green, Sac'to.
1891	Sacramento	Sept. 8-19	17,628	30,081	47,709	Frederick Cox, Sacramento.
1892	Sacramento	Sept. 5-17	17,106	29,950	47,056	Frederick Cox, Sacramento.
1893	Sacramento	Sept. 4-16	13,244	32,715	45,959	John Boggs, Princeton, Colusa Co.
1894	Sacramento	Sept. 3-15	13,447	29,220	42,667	John Boggs, Princeton, Colusa Co.
1895	Sacramento	Sept. 2-14	11,416	32,880	44,296	C. M. Chase, San Francisco.
1896	Sacramento	Sept. 1-19	12,971	47,222	60,193	C. M. Chase, San Francisco.
1897	Sacramento	Sept. 6-18	20,252	35,247	55,499	C. M. Chase, San Francisco.
1898	Sacramento	Sept. 5-17	20,163	28,170	48,333	A. B. Spreckels, San Fran.
1899	Sacramento	Sept. 4-16	10,529	38,745	49,274	A. B. Spreckels, San Fran.
1900	Sacramento	Sept. 3-15	9,768	38,745	48,513	A. B. Spreckels, San Fran.
1901	Sacramento	Sept. 2-14	8,974	30,355	39,329	A. B. Spreckels, San Fran.
1902	Sacramento	Sept. 8-20	15,000	40,280	55,280	A. B. Spreckels, San Fran.
1903	Sacramento	Aug. 31-Sept. 12	15,000	31,435	46,435	Benjamin F. Rush, Suisun.
1904	Sacramento	Aug. 22-Sept. 3	15,000	28,597	43,957	Benjamin F. Rush, Suisun.
1905	Sacramento	Sept. 2-9	6,656	24,419	31,075	Benjamin F. Rush, Suisun.
1906	Sacramento	Aug. 25-Sept. 1	7,598	10,640	18,640	Benjamin F. Rush, Suisun.
1907	Sacramento	Sept. 2-14	11,153	14,914	26,067	Benjamin F. Rush, Suisun.
1908	Sacramento	Aug. 29-Sept. 5	11,277	13,410	24,687	H. A. Jastro, Bakersfield.
1909	Sacramento	Aug. 28-Sept. 4	14,183	14,665	28,848	H. A. Jastro, Bakersfield.
1910	Sacramento	Sept. 3-10	14,465	6,930	21,395	H. A. Jastro, Bakersfield.
1911	Sacramento	Aug. 26-Sept. 2	14,790	26,300	41,090	A. L. Scott, San Francisco.
1912	Sacramento	Sept. 14-21	20,600	17,000	37,000	A. L. Scott, San Francisco.
1913	Sacramento	Sept. 13-20	25,000	37,000	62,000	A. L. Scott, San Francisco.
1914	Sacramento	Sept. 12-19	18,609	37,000	55,609	A. L. Scott, San Francisco.

*Resigned March 10th. Wm. Garrard appointed.

Many of the books and records of the Society were destroyed by a disastrous flood on the 9th of December, 1861, and 9th of January, 1862, caused by a break in the levee on the north side of Sacramento.

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STATE BOARDS OF AGRICULTURE AND DEPARTMENTS OF AGRICULTURE IN THE UNITED STATES (43).

State	Description and location	Organized
Alabama	Commissioner of Agriculture, Montgomery	1888
Arkansas	Commissioner of Agriculture, Little Rock (Society)	1898
California	State Board of Agriculture	1854
Colorado	State Board of Agriculture, Fort Collins	1877
Connecticut	Commissioner of Agriculture, Hartford	1866
Delaware	State Board of Agriculture, Dover	1901
Florida	Commissioner of Agriculture, Tallahassee	1889
Georgia	Georgia State Agriculture Society, Experiment	1846
Georgia	Commissioner of Agriculture, Atlanta	1874
Idaho	Commissioner of Immigration, Labor and Statistics, Boise	1900
Illinois	State Board of Agriculture, Springfield	1853
Indiana	State Board of Agriculture, Indianapolis	1851
Iowa	State Board of Agriculture, Des Moines	1900
Kansas	State Board of Agriculture, Topeka	1862
Kentucky	Commissioner of Agriculture, Frankfort	1892
Louisiana	Commissioner of Agriculture, Baton Rouge	1880
Maine	Commissioner of Agriculture, Augusta	1855
Massachusetts	State Board of Agriculture, Boston	1852
Michigan	State Board of Agriculture, East Lansing	1881
Minnesota	State Agricultural Society, Hamline	1854
Mississippi	Commissioner of Agriculture, Jackson	1907
Missouri	State Board of Agriculture, Columbia	1865
Montana	Commissioner of Agriculture (Bureau of Agriculture, Labor, Industry and Publicity), Helena	1889
Nebraska	State Board of Agriculture, Lincoln	1858
Nevada	State Board of Agriculture, Carson City	----------
New Hampshire	State Board of Agriculture, Concord	1870
New Jersey	State Board of Agriculture, Trenton	1873
New York	Commissioner of Agriculture, Albany	1893
North Carolina	Commissioner of Agriculture, Raleigh	1877
North Dakota	Commissioner of Agriculture, Bismarck	1889
Ohio	State Board of Agriculture, Columbia	1846
Oklahoma	State Board of Agriculture, Stillwater	1907
Oregon	State Board of Agriculture, Salem	1861
Pennsylvania	Secretary of Agriculture, Harrisburg	1895
Rhode Island	State Board of Agriculture, Providence	1892
South Carolina	Commissioner of Agriculture, Columbia	1904
South Dakota	State Board of Agriculture, Huron	1884
Tennessee	Commissioner of Agriculture, Nashville	1875
Texas	Commissioner of Agriculture, Austin	1906
Vermont	Commissioner of Agriculture, Plainfield	1872
Virginia	Commissioner of Agriculture, Richmond	1888
West Virginia	Commissioner of Agriculture, Charleston	1891
Wisconsin	State Board of Agriculture, Madison	1897

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AGRICULTURAL EXPERIMENT STATIONS (60*).

State	Description and location	Date of original organization	Organized under Hatch Act of March 2, 1887
Alabama	(College) Auburn	1872	Feb. 24, 1888
Alabama	(Canebrake) Uniontown	1885	Apr. 1, 1888
Alabama	(Tuskegee Institute) Tuskegee	Feb. 15, 1897	
Arizona	(State University of Tucson)	1885	1890
Arkansas	Fayetteville		Mar. 7, 1889
California	(State University) Berkeley	1873	Mar., 1888
Colorado	Fort Collins		Feb., 1888
Connecticut	(State) New Haven	Mar. 21, 1877	May 18, 1887
Connecticut	(Storrs) Storrs		May 18, 1887
Delaware	Newark		Feb. 21, 1888
Florida	Gainesville		1888
Georgia	Experiment	1888	July 1, 1889
Idaho	Moscow		Feb. 26, 1892
Illinois	Urbana		Mar. 21, 1888
Indiana	Lafayette		Jan. 1, 1888
Iowa	Ames		Feb. 17, 1888
Kansas	Manhattan		Feb. 8, 1888
Kentucky	Lexington	Sept. 25, 1885	Apr., 1888
Louisiana	(Sugar) New Orleans	Sept., 1886	
Louisiana	(State) Baton Rouge	Apr., 1887	1888
Louisiana	(North) Calhoun	May, 1887	
Louisiana	(Rice) Crowley		July 1, 1909
Maine	Orono	Mar., 1885	Oct. 1, 1887
Maryland	College Park		Mar. 9, 1888
Massachusetts	Amherst	1882	Mar. 2, 1888
Michigan	East Lansing		Feb. 26, 1888
Minnesota	(University Farm) St. Paul	Mar. 7, 1885	1888
Mississippi	(Agricultural College)		Jan. 27, 1888
Missouri	(College) Columbia		Jan., 1888
Missouri	(Fruit) Mountain Grove	Feb. 1, 1900	
Montana	Bozeman		Feb. 16, 1893
Nebraska	Lincoln	Dec. 16, 1884	June 14, 1887
Nevada	Reno		Dec., 1887
New Hampshire	Durham		Aug. 4, 1887
New Jersey	(State) New Brunswick	Mar. 10, 1880	
New Jersey	(College) New Brunswick		Apr. 26, 1888
New Mexico	(College of Agriculture) State College		Dec. 14, 1889
New York	(State) Geneva	Mar. 1, 1882	
New York	(Cornell University) Ithaca	1879	Apr. 1, 1888
North Carolina	(College) West Raleigh	Mar. 12, 1877	Mar. 7, 1887
North Carolina	(State) Raleigh	July 1, 1907	
North Dakota	(Agricultural College)		Mar., 1890
Ohio	Wooster	Apr. 25, 1882	Apr. 2, 1888
Oklahoma	Stillwater		1891
Oregon	Corvallis		July, 1888
Pennsylvania	(State College)		June 30, 1887
Pennsylvania	Institute of Animal Nutrition		July 1, 1907
Rhode Island	Kingston		July 30, 1888
South Carolina	(Clemson College)		Jan., 1888
South Dakota	Brookings		Mar. 13, 1887
Tennessee	Knoxville	June 8, 1882	Aug. 4, 1887
Texas	(College Station)		Jan. 25, 1888
Utah	Logan		Apr., 1890
Vermont	Burlington		Feb. 28, 1888
Virginia	(College) Blackburg		Oct. 16, 1888
Virginia	(Truck) Norfolk	Feb., 1907	
Washington	Pullman		1892
West Virginia	Morgantown		1887
Wisconsin	Madison	1883	1887
Wyoming	(State University) Laramie		Mar. 1, 1891

*Not including Alaska, Hawaii, Philippine Islands, Porto Rico, Arizona, Maryland, New Mexico, Utah, Washington, and Wyoming; maintain experiment stations only.

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States Having Stallion Registration Laws.

State	Name and location	Date of organization
California	Stallion Registration Board, Sacramento	Aug. 1, 1911
Colorado	State Board of Stock Inspection Commissioners, Denver	Aug. 5, 1911
Idaho	Stallion Registration Board, Moscow	Mar. 15, 1909
Illinois	Stallion Registration Board, Springfield	Jan. 1, 1910
Iowa	Stallion Registration Board, Des Moines	Mar. 30, 1907
Kansas	State Livestock Registry Board, Manhattan	Apr. 3, 1910
Michigan	Agricultural College, East Lansing	Aug. 1, 1911
Minnesota	Stallion Registration Board, St. Paul	Apr. 25, 1907
Montana	Bureau of Agriculture, Labor, Industry, and Publicity, Helena	Mar. 8, 1909
Nebraska	Stallion Registration Board, Lincoln	July 7, 1911
New Jersey	Stallion Registration Board, New Brunswick	Sept. 1, 1908
North Dakota	Stallion Registration Board, Fargo	Jan. 1, 1910
Oregon	Stallion Registration Board, Corvallis	May 20, 1911
Pennsylvania	Stallion Registration Board, Harrisburg	Jan. 1, 1908
South Dakota	Stallion Registration Board, Brooklings	Mar. 9, 1909
Utah	Stallion Registration Board, Logan	May 13, 1907
Washington	Stallion and Jack Registration Office, State College, Pullman	June 8, 1910
Wisconsin	Stallion Registration Board, Madison	Jan. 1, 1906

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APPENDIX B.

AGRICULTURAL AND OTHER ASSOCIATIONS AND CO-OPERATIVE ORGANIZATIONS IN CALIFORNIA.

Horses.

American Saddle Horse Breeders' Association.....Lexington, Ky.
Pacific Coast Trotting Horse Breeders' Association.....Pacific Bldg., San Francisco, Cal.
Pacific Coast Saddle Horse Breeders' Association.....Oakland, Cal.

Cattle and Sheep, Poultry.

Pacific Coast Trotting Horse Breeders' Association..Pacific Bldg., San Francisco, Cal.
California Live Stock Breeders' Association.....No. 628 Montgomery street, San Francisco, Cal.
California Jersey Breeders' Association, J. E. Thorp, Secretary.....Rural Route No. 6, Stockton, Cal.
California Holstein-Friesian Association, Jas. W. McAllister, Secretary.....Chino, San Bernardino County, Cal.
American Hereford Cattle Breeders' Association..1012 Battery ave., Kansas City, Mo.
Pasadena Poultry, Pigeon and Pet Stock Association.....Pasadena, Cal.
San Joaquin Poultry Association.....Stockton, Cal.
Poultry Keepers' Association.....Petaluma, Cal.
Southern California Poultrymen's Association, Jos. Davis, Secretary.....Los Angeles, Cal.
California Woolgrowers' Association, A. Ellenwood, Secretary.....Red Bluff, Cal.
California Creamery Operative Association, F. H. Daniels, Secretary.....No. 1223 Park street, Alameda, Cal.
Humboldt County Dairymen's Association.....Ferndale, Cal.
Stanislaus Poultry and Pet Stock Association.....Modesto, Cal.
American Hampshire Sheep Association.....Coldwater, Mich.

Association of Breeders of Purebred Dairy Animals in the United States.

The interests of the different breeders of dairy cattle are in charge of organizations of breeders, which determine purity of breeding, verify pedigrees, register eligible animals, and publish herdbooks. They also establish standards of excellence. The names of the various associations and the addresses of the secretaries are as follows:

Ayrshire Breeders' Association, C. M. Winslow, Secretary.....Brandon, Vt.
Brown Swiss Cattle Breeders' Association, Ira Inman, Secretary.....Beloit, Wis.
Dutch Belted Cattle Association of America, G. G. Gibbs, Secretary..Marksboro, N. J.
American Guernsey Cattle Club, William H. Caldwell, Secretary..Peterboro, N. H.
Holstein-Friesian Association of America, F. L. Houghton, Secretary..Brattleboro, Vt.
American Jersey Cattle Club, R. M. Gow, Secretary.....324 W. Twenty-third street, New York, N. Y.
American Kerry and Dexter Cattle Club, Prof. C. S. Plumb, Secretary.....Ohio State University, Columbus, Ohio

In addition to the strictly dairy cattle named above, some breeds, primarily developed for beef production, are occasionally bred and used as dairy cattle. Their associations are as follows:

American Devon Cattle Club, L. P. Sisson, Secretary.....Charlottesville, Va.
American Polled Durham Breeders' Association, J. H. Martz, Secretary.....Greenville, Ohio
Red Polled Cattle Club of America, H. A. Martin, Secretary.....Gotham, Wis.
American Shorthorn Breeders' Association, John W. Groves, Secretary.....13 Dexter Park Avenue, Union Stockyards, Chicago, Ill.

The following breeds are of practical dairy value, although not yet officially certified as purebred:

The American Polled Jersey Cattle Club, Charles S. Hatfield, Secretary.....R. F. D. 4, Springfield, Ohio
American Milk Goat Record Association, J. C. Darst, Secretary.....Dayton, Ohio
American Angora Goat Breeders' Association.....Lawrence, Kansas
American Aberdeen-Angus Breeders' Association....817 Exchange ave., Chicago, Ill.
American Shire Horse Association.....Bushnell, Ill.
American Hackney Horse Society.....Hempstead, N. Y.
Percheron Society of America.....Stockyards, Chicago, Ill.

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Swine.

American Hampshire Swine Record Association—Peoria, Ill.
American Yorkshire Club—White Bear Lake, Mich.
American Berkshire Associaton—Sprngfield, Ill.
Amercan Poland China Record Association—Union Stockyards, Chicago, Ill.
California Swine Breeders' Association—University Farm, Davis, Cal.
National Poland China Record Association—Winchester, Ind.
National Duroc Jersey Record Association—Peoria, Ill.
National O. T. C. Chester White Record Association—Hastings, Nebraska

Citrus Fruit Associations.

California Fruit Growers' Exchange—Los Angeles, Cal.
Citrus Protective League of California—Los Angeles, Cal.
Co-operative Fruit Growers' Association—Riverside, Cal.
Anaheim Fruit Association—Anaheim, Cal.
California Citrus Union—Lindsay, Cal.
Citrus Association—Covina, Los Angeles County, Cal.
Citrus Association—Porterville, Cal.
Los Angeles Olive Growers' Association—Los Angeles, Cal.
Fresno Citrus Association, H. V. Rudy, President—Fresno, Cal.
Hemet Orange Growers' Association—Hemet, Riverside County, Cal.
Lindsay Citrus Association—Lindsay, Tulare County Cal.
Mutual Orange Distributors—Redlands, Cal.
Placentia Orange Growers' Association—Placentia, Orange County, Cal.
Porterville Citrus Association—Porterville, Tulare County, Cal.
Redlands Orange Growers' Association—Redlands, San Bernardino County, Cal.
Santa Paula Citrus Association—Santa Paula, Ventura County, Cal.
Tulare County Citrus Fruit Exchange—Porterville, Tulare County, Cal.

Other Fruit Associations.

California Fruit Exchange—Sacramento, Cal.
California Fruit Distributors—Sacramento, Cal.
California Cured Fruit Exchange—Sacramento, Cal.
California Associated Raisin Company—Fresno, Cal.
California Raisin Exchange—Fresno, Cal.
Deciduous Protective League—Sacramento, Cal.
Humboldt Apple Growers' Association—Eureka, Cal.
Watsonville Apple Annual Association—Watsonville, Cal.
Bloomington Fruit Association—Bloomington, Cal.
Los Angeles Olive Growers' Association—Los Angeles, Cal.
Corning Olive Growers' and Producers' Exchange—Corning, Cal.
Deciduous Fruit Growers' Protective League—Sacramento, Cal.
Dried Fruit Association—Ventura, Cal.
Fruit Growers' Association—Kerman, Fresno County, Cal.
Grape Growers' Association of California—45 Kearny st., San Francisco, Cal.
Highgrove Fruit Exchange—Highgrove, Riverside County, Cal.
Imperial Valley Melon Growers' Association—El Centro, Cal.
Lima Bean Growers' Association—Oxnard, Cal.
Newcastle Fruit Growers' Association—Newcastle, Placer County, Cal.
Orange County Dried Fruit Association—Santa Ana, Orange County, Cal.
Pajaro Valley Orchardists' Association—Watsonville, Santa Cruz County, Cal.
San Antonio Fruit Exchange—Pomona, Los Angeles County, Cal.
San Joaquin County Grape Growers' Protective League—Lodi, Cal.
Sebastopol Apple Growers' Union—Sebastopol, Sonoma County, Cal.
Sebastopol Berry Growers' Association—Sebastopol, Sonoma County, Cal.
Vacaville Fruit Growers' Association—Vacaville, Solano County, Cal.
Ventura County Dried Fruit Association—Ventura, Cal.
West Side Fruit Growers' Association of Santa Clara Valley—Cupertino, Santa Clara County, Cal.
Winters Dried Fruit Company—Winters, Yolo County, Cal.
Winters Fruit Growers' Association—Winters, Yolo County, Cal.

Nut Growers' Associations.

California Almond Growers' Exchange—Sacramento, Cal.
Banning Almond Growers' Association—Banning, Riverside County, Cal.
California Walnut Growers' Association—No. 313 Fay Bldg., Los Angeles, Cal.
Santa Ana Valley Walnut Growers' Association—Santa Ana, Orange County, Cal.
Santa Barbara County Walnut Growers' Association—Santa Barbara, Cal.
Santa Paula Walnut Growers' Association—Santa Paula, Ventura County, Cal.

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Bees and Honey.

California State Beekeepers' Association.....4232 W. First st., Los Angeles, Cal.
Northern California Beekeepers' Association.....Fairoaks, Sacramento County, Cal.
California National Honey Producers' Association.....Los Angeles, Cal.
Central California Beekeepers' Association.....Hanford, Cal.
Tulare County Beekeepers' Association.....Tulare, Cal.
Consolidated Honey Producers of California.....A. B. Shaffner, Los Angeles, Cal.

Miscellaneous.

California Development Board.....Ferry Bldg., San Francisco, Cal.
Fish and Game Commission.....Mills Bldg., San Francisco, Cal.
Delta Association of California.....Col. John P. Irish, Oakland, Cal.
California State Grange, Joseph Holmes, Master.....Cupertino, Cal.
California Association of Nurserymen.....No. 237 Franklin st., Los Angeles, Cal.
California Farmers' Institutes.....University of California, Berkeley, Cal.
California Farmers' Union.....Fresno, Cal.
San Joaquin Water Problems Association, John Fairweather, President.....Fresno, Cal.
Sacramento Valley Development Association.....Sacramento, Cal.
Sacramento Poultry Association.....Sacramento, Cal.
California Vegetable Union.....San Francisco, Los Angeles and Sacramento, Cal.
Celery Growers' Association.....Santa Ana, Orange County, Cal.
Imperial Valley Cotton Growers' Exchange.....El Centro, Cal.
Lompoc Seed Growers' Association.....Lompoc, Santa Barbara County, Cal.

*Agricultural Newspapers.**

Pacific Rural Press (W.).....San Francisco, Cal.
California Fruit Grower (W.).....San Francisco, Cal.
Orchard and Farm (M.).....San Francisco, Cal.
California Cultivation (W.).....Los Angeles, Cal.
Rural Californian (M.).....Los Angeles, Cal.
California Fruit World (W.).....Los Angeles, Cal.
Western Empire (M.).....Los Angeles, Cal.
The Business Farmer and Irrigationist (W.).....Stockton, Cal.
California Farmer.....San Jose, Cal.
Pacific Dairy Review (W.).....San Francisco, Cal.
Live Stock and Dairy Journal (M.).....Sacramento, Cal.

California Oil World (W.).....Bakersfield, Cal.
California Derrick (M.).....San Francisco, Cal.
California Oil and Mining Digest (S.M.).....Los Angeles, Cal.
Oil Record (W.).....Coalinga, Cal.
Oil Age (W.).....Los Angeles, Cal.

*(W.), published weekly; (M.), monthly; (S.M.), semi-monthly.

NOTE.—Applications are often received for the names and addresses of agricultural and similar organizations, but it is a difficult matter to obtain this information. Any additions or corrections to the above list will be appreciated.

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APPENDIX C.

CALIFORNIA STATE, COUNTY, AND DISTRICT FAIRS AND SHOWS.

Name of fair, exhibition, or association	Place where held	Time when usually held	Description of exhibit
California State Agricultural Society, State Fair	Sacramento	Sept. 12th to 19th, 1914	General agriculture, live stock, general products, machinery, etc.
California Apple Show	Watsonville	October	Apples.
California Land Show	San Francisco	October	Soil and agriculture.
Agricultural Association No. 34	Alturas	September	General agriculture.
District Fair No. 16	Arroyo Grande	September	General agriculture.
Kern County Agricultural Association	Bakersfield		General agriculture.
West Side Live Stock and Agricultural Show Ass'n	Berkeley		General agriculture.
Cloverdale Citrus Fair Association	Cloverdale	February	Citrus fruits, etc.
Del Monte Kennel Club	Del Monte		Dogs.
District Agricultural Association No. 45	El Centro	November	Cotton and general agr.
Escondido Valley Poultry Association	Escondido	December or January	Poultry.
San Diego County Fair Association	Escondido	September or October	General agriculture.
El Dorado County Bartlett Pear Show	Placerville	August	Fruit.
Eureka Fair Association	Eureka		General agriculture.
Fresno County Agricultural Association	Fresno	Sept. 29th to Oct. 3d	General agriculture.
Fresno Poultry, Pigeon and Pet Stock Association	Fresno	December	Poultry, etc.
Ferndale Agricultural Fair Association	Ferndale	September	General agriculture.
Healdsburg Harvest Festival Association	Healdsburg	September or October	General agriculture.
Kings County Fair Association	Hanford	October 5-10, 1914	General agriculture.
Los Angeles District Fair	Los Angeles	Oct. 12-17, 1914	General agriculture.
Long Beach Poultry and Pet Stock Association	Long Beach	December or January	Poultry, etc.
Poultry Breeders' Association of Southern California	Los Angeles	January	Poultry.
Pacific Land and Products Exposition	Los Angeles	March	General agriculture.
Napa County Poultry Association	Napa	December	Poultry.
Oroville, Orange and Olive Exposition	Oroville	December	Citrus fruits and olives.
Pleasanton District Fair	Pleasanton	September 23-26, 1914	Agriculture.
Pasadena Kennel Club	Pasadena	March	Dogs.
Riverside District Fair	Riverside	Oct. 9-23, 1914	District fair.
Rose Carnival	Pasadena	January 1st	Agriculture.
Northern California Kennel Club	Sacramento	Fall	Dogs.
National Orange Show Association	San Bernardino	February	Citrus fruits.
San Diego County Fair	San Diego	October	General agriculture

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San Diego Poultry Association	San Diego County		Poultry.
Santa Clara County Fair	San Jose	September	General agriculture.
Santa Clara Valley Poultry Association	San Jose	October	Poultry.
St. Helena Vintage Fair	St. Helena	September	Wine and agriculture.
Orange County Poultry Show Association	Santa Ana		Poultry.
Santa Barbara Poultry Association	Santa Barbara	January	Poultry.
Santa Rosa District Fair	Santa Rosa	Aug. 31st to Sept. 5th	Floriculture.
Gravenstein Apple Show Association	Sebastopol	August	Apples.
San Joaquin County Fair	Stockton	September	General agriculture.
San Joaquin County Poultry Association	Stockton		Poultry.
Tulare County Agricultural Fair Association	Visalia		General agriculture.
Walnut Creek Fair Association	Walnut Creek		General agriculture.
Woodland District Fair	Woodland	Sept. 8-10	Agriculture.

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APPENDIX D.

SUMMARY OF WEATHER CONDITIONS, TEMPERATURE, RAINFALL AND SNOW IN EACH COUNTY IN 1913.

(Compiled from the Reports of the United States Weather Bureau, San Francisco.)

Counties	County seat or observation station	Elevation, feet	Temperature		Rainfall, inches	Snowfall, inches
			Highest	Lowest		
Alameda	Oakland*	36	97	30	17.81	Trace
Alpine	Tamarack[1 2]	8,000	80	—20	50.73	407.0
Amador	Ione[2]	287	110	14	16.27	0
Butte	Oroville* (near)	250	110	15	31.78	6.0
Calaveras	Mokelumne Hill[2]	1,550	105	18	25.00	6.0
Colusa	Colusa*	60	107	23	17.72	2.4
Contra Costa	Antioch	46	105	23	11.37	Trace
Del Norte	Crescent City*	50				
El Dorado	Placerville*	1,875	100	10	28.32	4.0
Fresno	Fresno*	293	109	17	8.69	Trace
Glenn	Willows*	136	112	24	21.20	3.0
Humboldt	Eureka*	64	78	28	33.80	0.5
Imperial	Brawley[2]	—105	113	21	2.21	0
Inyo	Independence*	3,907	103	4	7.36	0.8
Kern	Bakersfield*	404	116	14	No record	
Kings	Hanford*	249	104	14	No record	
Lake	Upper Lake[2]	1,350	107	13	32.05	Trace
Lassen	Susanville*[3]	4,175				
Los Angeles	Los Angeles*	293	108	28	17.17	Trace
Madera	Storey[2]	296	107	14	7.36	0
Marin	Point Reyes	490	91	33	16.74	0
Mariposa	Yosemite[2]	3,945	103	—2	32.00	123.7
Mendocino	Ukiah*	620	111	15	38.32	Trace
Merced	Merced*	173	110	18	10.31	0
Modoc	Alturas*	4,400	97	—21	16.77	79.0
Mono	Bodie[3]					
Monterey	Salinas*	40	102	19	10.14	0
Napa	Napa*	20	106	34	21.79	0
Nevada	Nevada City*	2,580	102	4	46.22	59.0
Orange	Yorba Linda	405	100	26	No record	
Placer	Auburn*	1,360	106	20	18.77	4.0
Plumas	Quincy*	3,400	97	0	33.14	112.0
Riverside	Riverside*	851	111	21	9.00	Trace
Sacramento	Sacramento*	71	109	26	14.29	0.1
San Benito	Hollister*	284	106	18	12.41	0
San Bernardino	San Bernardino*	1,054	108	18	12.87	0
San Diego	San Diego*	93	110	25	7.30	0
San Francisco	San Francisco*	207	101	33	19.05	Trace
San Joaquin	Stockton*	23	108	21	11.22	Trace
San Luis Obispo	San Luis Obispo*	201	109	20	18.19	0
San Mateo	San Mateo[2]	22	100	32	18.43	0
Santa Barbara	Santa Barbara*	130	108	27	18.56	0
Santa Clara	San Jose*	95	103	25	12.00	0
Santa Cruz	Santa Cruz*	20	106	24	25.04	0
Shasta	Redding*	552	112	18	36.96	25.5
Sierra	Sierraville[2]	5,000	94	—7	31.91	84.0
Siskiyou	Dunsmuir[2]	2,285	103	17	50.58	120.0
Solano	Vacaville[3]	175				
Sonoma	Santa Rosa*	181	112	25	31.38	0

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SUMMARY OF WEATHER CONDITIONS—Continued.

Counties	County seat or observation station	Elevation, feet	Temperature		Rainfall, inches	Snowfall, inches
			Highest	Lowest		
Stanislaus	Modesto*	90	111	22	9.86	Trace
Sutter	Yuba City*	57				
Tehama	Red Bluff*	307	110	25	25.77	8.0
Trinity	Weaverville*[4]	2,162	100	7	36.26	79.8
Tulare	Visalia*	334	109	13	9.81	0
Tuolumne	Sonora*	1,825	101	14	23.01	10.0
Ventura	Mono Ranch[2]	3,210	97	1	31.68	14.0
Yolo	Davis[2]	51	111	20	17.93	Trace
Yuba	Marysville*	67	110	21	22.48	3.0

*County seat.
[1]The snowfall at this station was the heaviest in the State, both in 1910 and 1911; in the former year it amounted to 302 inches, and in the latter year no less than 786 inches, or 65½ feet. In 1913 there were 421 inches at Fordyce dam in Nevada County, 407 inches at Tamarack, Alpine County, 295 inches at Blue Canyon, Placer County, and 245 inches at Summit in Placer County.
[2]Observation station.
[3]Details not available.

NOTE.—The snowfall in the mountains is more or less heavy; it rarely falls in the Sacramento and San Joaquin valleys. In a few cases there is no observation station at the county seat, the name of the place where the observations were taken is given.

In 1911 the rainfall was below the average, and the snowfall unusually heavy. In 1912 the deficient rainfall did not exceed 70 per cent of the normal, and the snowfall was light.

There are no observation stations in Nel Norte, Mono, and Sutter counties.

Summary.

The year of 1913 was one of light and untimely rainfall. The precipitation during the first half of the year was less than 50 per cent of the normal for that period, and had it not been for the exceptionally heavy rains in November and December, the yearly amount would probably have been less than that of 1912, which was generally considered a drought year. The only heavy rain during the winter occurred in February and was confined to southern California. The snowfall was light, but more than in 1912. During the summer and early autumn the streams approximated the lowest stages known, and many wells and springs ceased to flow. Heavy rain fell in November and December, especially in the northern part of the State. The abnormally heavy rainfall on December 31st caused considerable damage by floods. The twenty-four-hour rainfall at several stations on this date exceeded 10 inches. During the first ten days of January one of the most severe cold waves ever known in California damaged the citrus orchards to the extent of millions of dollars, the temperature falling to 15 degrees and lower. In the late summer and early autumn the weather was ideal for fruit and raisin drying.

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